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6 July, 1912.

FIELD NOTES.

Delta.

Mr. Irish reports a light rain Saturday night June 22, from 11 p. m. to noon of Sunday, and a light drizzle all Sunday afternoon, which he says is very unusual in the Delta at this season of the year.

During the week of June 29 potato plats were sub-irrigated, hay was harvested on Field I, and potatoes were given the first harrowing.

Williston.

For the week of June 29 Mr. Hawley reports the weather dry and hot, and says that if rain does not come soon the grain will burn up this year again. No irrigation water has been had yet, but it is expected that the pumps will be started during the current week.

Yuma.

During the week of June 22 the maximum temperature was 105, minimum 54.

The abnormally heavy snowfall and late spring over the watershed area of the Colorado River have resulted in an unprecedented flood. The river gage recorded approximately 30 feet, while the discharge exceeded all records. The levee on the California side for some three miles south of the Experiment Farm was seriously threatened for several days. The farm men performed volunteer emergency work on the levee, generally at night, when it was impossible to secure enough laborers. The river has begun to fall and all danger is past.

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FIELD NOTES.

Truckee-Carson.

The maximum temperature during the week of June 22 was 94, minimum 37; precipitation 0.02 inch.

All the alfalfa hay on the farm was out during the week.

Mr. Headley left on Sunday for a trip to the Pyramid Lake country to make a collection of botanical specimens growing about the lake and on the adjoining mountains.

Incalculable damage was done to the crops on the project June 20 by a southwest wind which blew a gale for 24 consecutive hours. On the Experiment Farm the more established vegetable varieties, such as melons, tomatoes, beans, etc., were considerably damaged by the moving sand. New tomato plants were immediately secured to replace the damaged ones. The sugar beets on Field F, which had produced a perfect stand, were also out by the sand, but it is expected that they will revive and produce a heavy yield. Fruit trees were also damaged and much fruit which had set on the trees was blown to the ground.

San Antonio.

The maximum temperature for the week of June 22 was 98.5, minimum 59; greatest daily range, 32.5.

The total precipitation was 1.37 inches, the greater part of which fell on June 13. This rain was of much benefit to the corn and sorghum, which were at a critical period of their growth.

The cotton was cultivated after the ground had dried sufficiently for working.

Orchards A3 and B3, which have just grown a crop of Canada peas, have been put in condition for clean culture by disking.

All plantings and trees on the Farm grounds received a thorough irrigation and cultivation during the early part of the week.

Due to the rains of the latter part of the week some extra labor was available for working on grounds, thus improving appearances and making more Bermuda grass lawns.

Mr. Cook arrived on the 20th and Mr. Kinsler on the 21st.

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FIELD NOTES.

San Antonio (continued)

The maximum temperature for the week of June 29 was 95.5, minimum 60.5; greatest daily range, 31. Total precipitation, 0.52 inch.

On Thursday cowpeas were put in after oats on plats A5-4, 12, and 16. Plats A4-6, A5-1 and 8 were plowed on Friday. All of the cotton and sorghum in 4-ft. rows was cultivated.

The 1/10 acre plat of Sudan grass on C5 was cut, giving a hay yield of 4.43 tons per acre for the first cutting. The farm sorghum on A3-2 was cut and also the Johnson grass on D5 and 6.

Mr. J. H. Kinsler visited the farm on the 25th.

Messrs. Blair and Meade spent the 26th and 27th at Kerryville, and Mr. Blair a part of Friday and Saturday at New Braunfels.

Scottsbluff.

For the week of June 29 Mr. Knorr reports as follows:

Monday and Tuesday one mower was kept busy cutting alfalfa and all but three acres was cut. On Tuesday afternoon stacking was begun and continued until Saturday. We estimate that we put up close to 50 tons of hay, all of which was gotten up in good shape.

The sugar beets were hoed and the potatoes gone over during the week. Since irrigation has started weeds are growing faster than we can take care of them.

The dry-land grains suffered considerably during the week, many of the plants being badly burned. This is especially true of the M. C. plats of the fall plowing. The fallow plats are the best ones at this time. June 30 a nice rain fell, but it came too late for some of the grain.

We are now running two feet of water, going over the grain for the last time and over the alfalfa that has been cut.

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FIELD NOTES.

Belle Fourche.

During the week of June 29 the maximum temperature was 101, minimum 53; no precipitation.

During the week the men have been employed in the construction of irrigating ditches between series I and II, and III and II on Field A; in irrigating the remaining grain plats on Fields A and H and the garden and forestry plats; in thinning beets in the irrigation rotation experiment, and in fencing and hoeing weeds.

Umatilla.

The maximum temperature during the week of June 29 was 103.5, minimum 47.

Almost the entire place has been irrigated, following the severe wind of last week, and the greater part of the land cultivated.

A number of the more tender plants which were affected by the wind are coming out, but the peach and prune trees that were injured still look bad.

COMPARATIVE WEATHER RECORDS FOR JUNE.
COMPARATIVE WEATHER RECORDS FOR JUNE.

	Umatilla.	Belle Fourche.
Maximum temperature	91 0	101 0
Minimum "	35 0	39 0
Mean "	60 4	69 43
Aver. wind velocity	4 48	7 94
Rainfall	1 25	17
Days clear	14	
Days partly cloudy	13	
Days cloudy	4	

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FIELD NOTES.

Yuma.

The maximum temperature during the week of June 29 was 108, minimum 57.

The fourth cutting of alfalfa was made during the week. This cutting averaged better than the previous one.

On the road between the C and D series the grade was raised through the slough and some repair work was done on the road to Yuma at the southwest corner of the farm.

All of the cotton was irrigated and the ditches have now all been disked.

Work on the fence around the farm is being continued.

The Colorado River has fallen $6\frac{1}{2}$ feet since the high point of last week, so all danger of an overflow on the project is passed. The seepage water standing on some of the farms has begun to recede, though the underground water on the Experiment Farm is still rising.

Mr. Gilbert spent Tuesday and Wednesday carrying out thinning experiments with cotton on Mr. Harold Bell Wright's ranch near Holtville, in the Imperial Valley.

Mr. Peterson left Saturday evening for Los Angeles and vicinity.

Williston.

Mr. Hawley reports that rain fell every day during the week of June 29. These rains came at an opportune time, as the crops were in need of water and the farmers had had some difficulty with the Reclamation Service in regard to starting the pumps.

The rains did some damage to alfalfa, a number of fields being down, but other crops are doing very well.

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FIELD NOTES.

Huntley.

During the week of June 29 the weather continued hot and dry, and small grains in the dry-land rotation field are burning severely.

The dry-land oats and wheat have headed out rather short, corn is making excellent growth, and flax and alfalfa are doing well, the flax beginning to bloom. Peas were plowed under during the week. On most plats peas made a fairly good growth — about 15 inches high.

On the irrigated land, harvesting of the first crop of alfalfa was completed, with weather conditions excellent for getting the hay cured and into the barn in good condition. The average yield of alfalfa hay on 14.67 acres was 4,147 pounds per acre. The following crops harvested June 19 gave the yields per acre indicated:

Bromw, orchard rye grass,	
alfalfa, alsike, red clover.....	3,740
Brome, orchard.....	5,500
Orchard, Italian rye, clender	
wheat, alsike, red clover.....	2,240
Alfalfa.....	4,460
Timothy, red clover.....	4,720
Red clover.....	4,280

Alfalfa in fields A, B, and C was irrigated during the latter part of the week.

Flax in AII-lb, and nurse crop plats in AIII, and alfalfa, flax, and grain plats in irrigation rotation field were given their first irrigation.

Alfalfa was planted in strips 18 feet wide between rows.

Messrs. Scofield, Swingle, and Cole visited the farm the first part of the week.

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EXPERIMENTS AT MIDDLE RIVER, CALIFORNIA.

The experimental work at Middle River, Cal., under the supervision of Mr. J. P. Irish, Jr., is now well blocked out for the current season. The land involved occupies 45 acres, more or less, in four fields, as follows: Field E.F.G., 15.5 acres; Field H, 6.6 acres; Field I, 13.3 acres, and Field J, 10 acres. All this land was planted to potatoes in 1911 and was very weedy when taken over for experimental purposes this year. The soil is typical light tulle peat characteristic of the reclaimed land on the San Joaquin side of the Delta.

The investigations for this season are devoted to determining what methods of tillage, rotation and fertilization may be expected to give the best results in potato production and weed control, and make possible the ultimate use of potato planting and digging machinery to replace some of the expensive hand labor required under present conditions.

Fields E.F.G., H and J are laid off in lands 66 feet wide, running north and south, and will be planted to late potatoes, while Field I is planted to barley that will be cut for hay and the land summer fallowed to rid it of weeds.

Alternate lands in Field E.F.G. were plowed in February 6 inches and 12 inches deep and the north half of the alternate pairs was sown to vetch early in March, the south half of the same pairs being sown to barley. Certain blocks of these lands were treated with fertilizers at the time of seeding.

The vetch had made but little growth, while the barley reached a height of 15 to 18 inches, by the middle of May, when the lands were plowed.

In addition to the fertilizers applied on the green manure, fertilizer was applied in the rows of potatoes at planting time, early in June. The fertilizers used in both cases were K_2SO_4 , KCL, and $CaH_2P_2O_8$, all very high grade.

On Field H the chief experiment is to determine the effect of different depths of plowing. The field is divided into three lands, one plowed 6 inches deep,

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(Experiments at Middle River, Cal., continued)

one 12 inches, and the third 18 inches, the last depth being secured with a Spalding double disk plow. This field was planted uniformly to potatoes early in June.

On Field J an experiment in depth of planting in connection with two depth of plowing will be tried. The lands were plowed 6 inches and 12 inches deep, one-half of them sowed to barley for green manure, and the potatoes were planted 4 inches and 8 inches deep on both kinds of plowing.

FIELD NOTES.

Truckee-Carson.

The maximum temperature during the week of June 29 was 90, minimum 36.

Of the 12 varieties of alfalfa in duplicate rows on Field F-15, cut for hay, Arabian and Elche showed the poorest yields; Caucasus and Grimm the best.

The yields of alfalfa obtained from the various fields averaged 1.92 tons per acre, with a maximum yield on one field of $\frac{3}{4}$ acre of 3.17 tons, and a minimum yield on a field of 1.92 acres of 0.77 ton.

Mr. Headley left on Sunday, June 16, for a trip to Pyramid and Winnemucca Lakes country, to make a collection of botanical specimens growing about the lakes and on the adjoining mountains. The following is an extract from his notebook reporting on the flora condition about these lakes:

"Accompanied by Mr. Harrington, who is in charge of the U. S. Land Survey party, a trip was made over the lake range of mountains, where we camped near Pyramid Lake. The divide between the lakes is 3,000 to 4,500 feet above the lake level. It was noticeable that there was a marked change in the flora as we ascended toward the summit.

FIELD NOTES.

Truckee-Carson (continued)

"Near Winnemucca Lake the vegetation was sparse and uninteresting, except along bottoms of ravines watered by springs. As we approached the summit the vegetation became more dense, and a large number of new species were observed that were not found lower down.

Characteristic plants found near the summit and not at the lower levels were Lupine, wild currant, wild sunflower, with broad basal leaves; larkspur, junipers, and a beautiful flower and numerous other small flowering plants with which I am unacquainted.

The lupines began to grow about 1,500 feet above the lake, and near the summit were so plentiful as actually to color the mountain sides blue. This plant furnishes a large part of the forage to the wild horses that inhabit the mountains. Our saddle horses preferred the lupines to a rye grass (?) that was plentiful in the ravines.

Junipers were plentiful on the west slope of the range, but not a single one was seen on the east side.

The wild currants were plentiful to the tops of the highest mountains and often grew out from rocks where there was very little soil.

Some trees of what I took to be wild cherries were found in one canyon, and a tree evidently closely related to the apple is plentiful.

A bush bearing small fruit somewhat resembling the wild almond (Amygdalus andersonii) is plentiful in the lower canyons on the east side of the range. This bush was not found by the surveyors on the west side of Pyramid Lake last year.

Some wild almonds grow in the lower canyons, but they are not plentiful, as they are on the west side of Pyramid Lake."

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FIELD NOTES.

Scottsbluff.

In his report for the week ending July 6 Mr. Knorr states that 1.21 inches of rain have fallen since July 1, but that it came too late to save all of the grain on the dry land, much of the wheat and barley having been too far gone to derive any benefit from it.

Two men were kept busy the greater part of the week in irrigating grain, alfalfa, and potatoes, this being the last irrigation that will be required this year. Irrigation of the new seeding of alfalfa was also begun. This new seeding will be ready to cut at the same time that the older alfalfa is ready for second cutting.

The second seeding of the sugar beets was thinned and hoeing started during the week.

On Monday cultivation of the corn and sorgo on both the dry and the irrigated land was started.

Since the rains the weeds are growing faster than they can be cut.

Belle Fourche.

The maximum temperature for the week of July 6 was 95, minimum 55; precipitation, 1.86 inches.

On the night of the 3rd there occurred a rain of 1 inch, followed the next day by 0.46 inch. These rains will not cause any improvement in the dry-land grains, but will help out the corn and alfalfa.

The irrigating of grains on fields A and H has been completed, and the potato and beet plats on these fields are partially finished.

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ASSOCIATION OR SOCIETY DUES, FEES, AND EXPENSES.

Following is the full text of Departmental General Order No. 155, dated July 1, 1912, prohibiting the use of government funds for the payment of membership dues or fees to associations or societies or for expenses incurred in attending meetings of such associations or societies, unless authorized by special appropriations.

"Attention is invited to the following provision in the Act approved June 26, 1912, making appropriations to provide for the expenses of the government of the District of Columbia for the fiscal year ending June thirtieth, nineteen hundred and thirteen, and for other purposes:"

'Sec. 8. No money appropriated by this or any other Act shall be expended for membership fees or dues of any officer or employee of the United States or of the District of Columbia in any society or association or for expenses of attendance of any person at any meeting or convention of members of any society or association, unless such fees, dues, or expenses are authorized to be paid by specific appropriations for such purposes or are provided for in express terms in some general appropriation.'

"Hereafter, in conformity with the foregoing provision, no officer or employee of the Department of Agriculture attending any convention or meeting of an association of any kind will be reimbursed for any expenses incurred in connection therewith. In case officers or employees desire to attend at their own expense society or association conventions or meetings which have for their object the advancement of sciences bearing directly upon the work of the Department of Agriculture or objects otherwise related to the work of the Department, permission must be secured in advance from the Secretary upon the recommendation of the Chief of the Bureau involved. When such permission is granted by the Secretary the time consumed by officers or employees in proceeding to such conventions or meetings, in attendance thereon, and in returning to their official duties, will be charged to annual leave, with or without pay, as the Secretary may direct.

All previous orders in conflict with the above are hereby revoked."

(Signed) JAMES WILSON, Secretary.

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SUBVOUCHERS FOR MEALS.

The Auditor for the State and Other Departments, who has supervision of the final audit of all the vouchers from the Department of Agriculture, is now demanding subvouchers to support items in reimbursement vouchers for meals where two or more consecutive meals are taken at any one place, unless payment is actually made for each meal at the time it is taken.

One practical effect of this order is to necessitate the use of subvouchers where more than one meal is taken by transient employees at experiment farm boarding clubs.

APPROPRIATION FOR FISCAL YEAR 1913.

A joint resolution which continues our appropriation through the month of July to the amount of one-twelfth of the appropriation for the fiscal year 1912 passed Congress and became effective July 1, 1912.

This resolution will continue in effect to and including July 31, or until the regular appropriation bill for the fiscal year 1913 has passed, which will be drawn for the full fiscal year. This 1913 appropriation will be effective for the amounts therein provided, less the amount expended under the corresponding appropriations during the period covered by the joint resolution. In pro rating expenses, allotments, etc., for July between the funds provided by the joint resolution and those provided by the regular appropriation bill, if the appropriation bill becomes effective prior to August 1, 1912, salaries will be handled on the basis of one-thirtieth of a month's pay for each day, up to and including July 30, and other expenses will be on the basis of $1/31$ of $1/12$ of the 1912 appropriation for each day during July.

When the regular appropriation for 1913 becomes effective all expenditures will at once be transferred from the funds provided by the joint resolution and charged against funds provided by the appropriation bill. This transfer will have little apparent effect in handling the salaries at field stations, except that it may make it necessary to submit two pay

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Appropriation for Fiscal Year 1913 (continued)

pay rolls, one each for the different parts of the month. It will be necessary, however, to at once cease incurring expenses under the authorizations issued on the funds provided by the joint resolution and begin charging expenditures against authorizations which will be provided under the regular 1913 appropriation. Telegraphic notifications to all the field men concerned will be sent at the earliest possible moment, advising them, first, when the regular 1913 appropriation becomes effective, and, second, when expenditures under the new appropriations may be begun. It is possible that there may be a lapse of a day or two between the time when expenditures under the authorization provided under the "continuing" resolution must be discontinued and the date when expenditures under the authorization drawn on the 1913 appropriation may be begun.

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FIELD NOTES.

San Antonio.

The maximum temperature during the week of July 6 was 98, minimum 70.5; greatest daily range, 24.5; no precipitation.

The sorghum in the 4-ft. rows on the rotation plats was cut.

Plats A6-15-17 were manured and subsoiled.

Messrs. Hastings and Letteer were in Boerne on the 2nd and a part of the 3rd, collecting plants on the Guadalupe River.

The garden and other crops on D3 were irrigated.

The maximum temperature during the week of July 13 was 100, minimum 67.5; greatest daily range 29.5. There was no precipitation.

The sorghum on rotation plats cut the previous week was raked and cocked, and on the 12th the sorghum on the rotation plats in 6-inch drills was cut.

The second and third plantings of broom corn on C4 and C5 were harvested on Monday.

The cotton on D3 was irrigated for the first time on the 11th and 12th.

The garden and nursery were irrigated, as were also the seedlings for stock in the nursery on D3. The latter are of a size sufficient to begin budding as soon as mature budwood of peach and plum can be secured.

The earliest varieties of peaches in the Mexican seedling orchard on E4 are ripening. This orchard bears a very heavy crop this year of perfect fruits, although many are of inferior size, due largely to lack of moisture. The quality of some is good, and with careful observation and elimination the best varieties should be conclusively selected after the study of this crop of fruit.

The best varieties of Japanese plums, Burbank, and Wickson were gathered the first of the week.

Mr. J. O. Belz spent the 10th and 11th at the farm.

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Truckee-Carson.

The maximum temperature during the week of July 6 was 90, minimum 38.

A precipitation of 2.40 inches was recorded at the station from June 30, 1911, to June 30, 1912.

A large portion of the week was spent in fixing up the grounds around the office and laboratory. A 6-inch pipe line has been run from the engine pump to the plat between the office and laboratory for the purpose of irrigating the lawn. Very satisfactory results were obtained.

An outbreak of cut worms occurred in a sugar beet field in the project. On one ranch about 70 per cent of a stand on ten acres was destroyed.

The fertilizer tests of potatoes on the Ferguson tract are badly infested with wire worms. The worms are working in the seed that was planted and seem to have the effect of holding back the growth of the potatoes and in some cases of entirely killing the plant.

Delta.

The maximum temperature during the week of July 6 was 93.1, minimum 42.5.

The week was devoted to sub-irrigating potatoes, cutting and digging irrigation ditches, plowing hay lands, cultivating potatoes, and putting up hay.

A carded record of the various plats in potatoes, carrying a full record of the treatment of each plat, has been completed.

Potatoes are not sufficiently advanced to justify a report on their condition in the various plats.

The maximum temperature during the week of July 13 was 90, minimum 45.5.

The week was devoted to hauling hay, plowing hay lands, and digging irrigation ditches.

Potatoes on lands 9 and 10 are up in fair shape, but show some signs of corrosion on the root and stem where the acid phosphate exceeded 600 pounds to the acre. The plants, however, seem strong and fairly healthy.

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FIELD NOTES.

Yuma.

The maximum temperature during the week of July 6 was 103, minimum 58.

The experiments with ramie, which were started in cooperation with Mr. Brand's office and two local farmers, have not been very successful to date. Less than 10 per cent of the roots which were received from Louisiana and Florida grew. Considerable difficulty has also been experienced in securing a stand of ramie seedlings by potting from the seed bed. The plants in the seed bed have been hardened off by exposure to full sunlight and the tops cut off. A special transplanting room was constructed and covered with burlap, which was kept wet, resulting in a lowering of temperature some 20° and increasing the humidity. Notwithstanding these precautions, only an occasional plant withstands transplanting. There are sufficient plants growing in the field, however, to supply roots for extending the planting next spring; probably enough to complete the two 5-acre tracts.

Huntley.

During the week of July 6 a total precipitation of 2.80 inches was registered.

Heavy rains and in some parts of the project hail has done considerable damage to growing crops and the first crop of alfalfa in shock and stack. The heaviest rain came on Monday, when 1.56 inches was recorded at the station in 30 minutes, and the indications are that the rain was much heavier on other parts of the project. Coming at a time when ditches and canals were carrying a full head of water, this caused considerable land to be flooded, and many fields were under water for several days afterward. Hail fell on about one-fourth of the project, beginning at a point about one mile northwest of Osborn and extending east to Pompey's Pillar. Grain that was headed out was damaged severely, but beets and other crops will probably recover and make a good crop. Several structures on the canal extension being built at Pompey's were washed out.

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FIELD NOTES.

Huntley. (continued)

Very little damage was done at this farm. On the dry-land, oats and wheat will make only partial recovery, as they suffered severely from dry weather before the rain. Corn and flax had not yet been injured and are making excellent growth.

The ground has been too wet to do any work on the Worden tract.

During the week of July 13 was warm and dry, and after the heavy rains of the previous week all crops were making excellent growth.

Sugar beets have almost recovered from the effects of the hail, but in some parts of the project grain is badly damaged and will make but a small crop.

The grain in the irrigation rotation field is well headed and has made exceptionally good growth in the past two weeks and promises now to make a good yield.

In the dry-land rotation field grain is only partially recovered. Oats and barley will probably make a fair yield; flax and corn doing very well.

Weeds have become very troublesome in both dry and irrigated land and most of the time during the week has been spent in weeding.

No irrigation was necessary during the week. Grain will probably not need any more irrigation, and beets will not need irrigation for a week or two.

The ground is still too wet to work at Worden.

1. The first part of the paper is devoted to a discussion of the general principles of the theory of the structure of the atom.

2. The second part of the paper is devoted to a discussion of the general principles of the theory of the structure of the atom.

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FIELD NOTES.

Scottsbluff.

Two and three men were kept busy during the week of July 15 in irrigating the rotation plots.

The sugar beets on Field D were irrigated on Tuesday and cultivated on Saturday.

The remainder of the alfalfa was cut Monday and put up in good shape. As soon as the hay was removed from the ground irrigation was started in the alfalfa.

The potatoes on the farm are in fairly good shape. Several diseases have made their appearance, but some results will be secured from the work. Black leg is showing up very strongly on the potatoes from the Minnesota seed, and some leaf curl is also showing up, but not enough to do very much damage to the crop.

The dry-land grains are suffering from the continued dry weather; several of the wheat plots will yield only straw. To date, the corn and oats are looking the best.

On Wednesday the Governor and a party of about forty visited the Farm, and on Saturday Messrs. Rogers and Bosman, of South Africa, inspected the station.

SILT DEPOSIT AT SCOTTSBLUFF.

Mr. Knorr has sent in samples of hardened soil representing a silt deposit recently made by the irrigation water at the Scottsbluff Farm. The samples, taken from some of the farm laterals, are from 1/4 to 1/2 inch in thickness, are extremely hard, and of a light gray color. It is stated that the thickness of the deposit left on the irrigated fields varied according to the slope of the land and the time the water was kept on the fields. The deposit did some damage to the roots of young plants, young alfalfa being particularly affected.

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COMPARATIVE WEATHER RECORDS FOR JUNE.

	Huntley.	Yuma.	Truckee- Carson.
Mean temperature	66.8	82.67	65.10
Maximum "	99.5	114.00	96.00
Minimum "	35.0	54.0	36.00
Rainfall	1.14	.51	.22
Av. wind velocity	3.9	4.0	5.20
Days clear	18	24	22
Days partly cloudy	6	5	4
Days cloudy	6	1	4

MR. SCOFIELD'S TRIP.

Mr. Scofield will leave Washington July 24, en route to visit the field stations at Mitchell, Nebr., Newell, S. Dak., and Osborn, Mont. He will stop at Minneapolis for a few days and will be joined by Mr. Farrell, who will accompany him to Osborn. From Osborn Mr. Scofield will return to Washington about August 15, while Mr. Farrell will proceed to Williston, N. Dak., Hermiston, Ore., Stock, Cal., Fallon, Nev., and San Antonio, Texas, returning to Washington about October 1.

27 July, 1912.

FIELD NOTES.

Truckee-Carson.

The maximum temperature during the week of July 13 was 93, minimum 45; precipitation, 0.01 inch.

An experiment with samples of poor soil from Field D-7 was begun. Twelve soil cylinders were filled and a study will be made of (1) the effect of gypsum on percolation; (2) the effect of gypsum on plant growth; (3) the effect of gypsum on the salt content of the water which percolates through.

Considerable work was done in improving the appearance of the grounds about the buildings. The ground between the office and barn was leveled and seeded thickly to alfalfa as a lawn.

Scottsbluff.

During the week of July 20 the winter wheat on the dry-land was cut and the barley on the dry-land was harvested. Some of the oats are ripening fast and will be ready to cut within a few days.

A large percentage of the heads of spring wheat on the dry land are blasted, but on the whole the yield will be fairly good.

All of the beets were irrigated during the week, and also a portion of the potatoes. All of the alfalfa has been irrigated for the second time, and haymaking will be begun again in a short time.

Messrs. Vinall and Cole visited the Farm, and Mr. Weiss, of the Reclamation Service, took Messrs. Cole and Knorr to inspect some sandy land and make a selection of such land for experimental purposes. Tentative arrangements have been made with a farmer five miles from the Experiment Farm for about twenty acres of land.

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FIELD NOTES.

Belle Fourche.

The maximum temperature during the week of July 20 was 89, minimum 40; precipitation, 0.81 inch.

The men were employed during the week in irrigating the grain and flax plats on Fields A and H, making irrigation ditches through Fields I and K, grading roads, and cleaning cisterns.

Mr. Carr made a week's trip in the Hills, collecting the native plants around Whitewood, Deadwood, Terry, Spearfish, and Belle Fourche. He returned with about 125 additional species of the native plants, including several forms of *Rubus* and other shrubs.

Williston.

Mr. Hawley reports all crops doing well. The farmers and the Reclamation Service have reached an agreement and the pumps are to be started during the current week. Fortunately, there has been ample rainfall to prevent injury to crops through lack of irrigation water. Most of the first cutting of alfalfa was badly damaged by rain.

San Antonio.

The maximum temperature for the week ending July 20 was 100, minimum 70.

The weather was cloudy during the greater part of the week. Two showers fell in the city of San Antonio, amounting to a total precipitation of 1.17 inches, while the total precipitation at the Farm was only 0.08 inch.

The dwarf milo on the rotation plats was headed, and the sorghum in rows on A4-10 was cut and raked. This sorghum was on a plat which was summer fallowed last year, and, though planted at the same time, was a week and a half later than other plats planted in the same manner but on land cropped last year.

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FIELD NOTES.

San Antonio (continued)

On the 16th and 17th Mr. Hastings was at Crystal City, Texas, looking into the agricultural conditions of that section, which is being rapidly developed. On the 18th and 19th he was at Del Rio, visiting the irrigated farms and orchards in that district.

Dr. Saunders was at the Farm Friday and Saturday, harvesting his Texas corn varieties. Two varieties of grain sorghums were planted with these varieties and gave yields of 57 bushels per acre for the Sudan durra and 63 for the Dwarf milo. The best variety of corn yielded 40 bushels per acre and the poorest about 22. These figures are based on yields from 4-rod rows.

The irrigated plats of cotton on D3 were given a light irrigation. The garden and nursery on D3, trees on the grounds, nursery on A3, and lawns were irrigated during the week. A portion of the old fence north of the Farm was taken down, the new one, built by the city, being completed.

The Farm was visited Saturday by an agricultural class of 47 students who are attending summer normal school in San Antonio.

Messrs. J. H. Kinsler and C. G. Marshall, of the office of Crop Acclimatization, visited the Farm Saturday.

Mr. R. F. Meade was working with cotton plantings at Del Rio and Crystal City during the week.

3 August, 1912.

APPROPRIATION FOR FISCAL YEAR 1913.

Congress has passed a second "continuing" resolution covering the period August 1 to 15, inclusive. This resolution extends each appropriation for this period in an amount equal to one-half of one-twelfth of the appropriation for the fiscal year 1912.

Since it is possible that the regular appropriation bill may become effective at any time during this period, the expenditures under the "continuing" resolution being thereupon discontinued, the funds provided under this resolution should not be expended at a rate to exceed for each day one-fifteenth of the total amount available.

It is expected that authorizations will be issued in the following amounts:

S. H. Hastings.....	\$90	W. A. Peterson....	\$90
Argyle McLachlan....	100	John P. Irish....	50
F. B. Headley.....	90	R. W. Allen.....	50
Dan Hansen.....	90	Beyer Aune.....	90

PRINTING REQUISITIONS.

Several requests for letter-heads received recently from farm superintendents have been unaccompanied by the "copy" desirable in such cases. We have never retained in this office samples of the letter-heads used at the various farms, and the lack of such "copy" has made it necessary to clip the letter-heads from letters in our correspondence files, in order to supply the printer with proper forms for making up new stationery. It is therefore suggested that hereafter requests for letter-heads, forms, blanks, or printing of any kind, be accompanied by a sample or satisfactory "copy" of the printing desired.

3 August, 1912.

FIELD NOTES.

Scottsbluff.

Nearly all of the dry-land grain was cut during the week of July 27. The wheat plats on fallow on the continuous cropping and in rotations 5 and 18 were not ready to be cut.

About one-half of the barley varieties, a portion of the winter wheat, and the sixty-day oats were cut.

All the potatoes and sugar beets were irrigated the first part of the week and cultivated Friday and Saturday.

The corn and sorghos were irrigated Friday.

A large number of visitors were at the Farm during the week, including some farmers from the Sheep Creek country, who drove 25 miles for the purpose of seeing the station.

Belle Fourche.

The maximum temperature for the week of July 27 was 92, minimum 57; precipitation, 0.60 inch.

The wheat plats in the dry-land rotation experiment were practically a total failure this year, as far as grain is concerned. They have been mowed, but it is not worth while to thresh.

The oats on the dry-land rotations have also been harvested, and the harvesting of Mr. Salmon's variety plats of grains has been partially completed.

Field work during the week included the cultivating of inter-tilled crops in the irrigated rotation experiment, the garden and forestry plats; plowing the forestry plat, hoeing weeds and mowing the lawns.

Umatilla.

During the week of July 15 the maximum temperature was 95, minimum 48; for the week of July 20 the temperatures were 102 and 50, respectively.

The routine work of the farm has progressed without interruption, and crops are doing quite well.

3 August, 1912.

FIELD NOTES.

Truckee-Carson.

The maximum temperature for the week of July 20 was 100, minimum 52; precipitation, 0.11 inch.

Experiments with the soil cylinders indicate quite clearly that the use of gypsum or of lime will have the effect of making the soil more pervious to water. These experiments indicate that when gypsum is used and good drainage provided the alkali can be washed out of the worst adobe soils.

A portion of the work room of the greenhouse has been partitioned off to be used as a toilet and bath house, and a septic tank has been constructed as part of the drainage system from the toilet.

For an exhibition at the local county fair this year, a collection of native grasses and forage plants of all kinds is being made. To date about 25 samples have been collected.

Huntley.

During the week of July 20 the weather was cool, but there was no rain.

Oats on the dry-land are ripening, but the yield will be so light as to be almost a failure.

Barley is also light and is headed so short as to make it difficult to harvest with the binder.

Other crops on dry land are doing well.

The grain plats in the irrigated rotation field were given the last irrigation, as was also the grain in fields A and C.

Beets, potatoes, and corn have been ditched for first irrigation.

During the week of July 20 the weather was warm and dry.

Oats on the dry land rotation plats were harvested. The yield will be so light as to make it impossible to thresh these plats separately.

Barley and wheat are ripening, and the latter promises a fair yield.

Corn is tasseling and is beginning to show the need of rain.

Alfalfa plats in the irrigated rotations was clipped and all alfalfa, potatoes, corn, and beet plats irrigated.

3 August, 1912.

FIELD NOTES.

Huntley (continued)

Potatoes in some plats are beginning to be affected by blight.

Profs. Atkinson, Cooley, and Nelson, of the Montana State Station, visited the farm on Monday, having come down to attend the annual farmers' picnic, held on that day.

Mr. Cole visited the station Tuesday.

Yuma.

Maximum temperature for the week of July 13 was 109, minimum 61.

The appearance of the farm has been greatly improved by mowing the weeds on the uncultivated areas.

The fifty date palm offshoots which were planted in nursery rows are all alive, and a few have made some growth.

Five hundred and sixty Cyperus papyrus plants (S.P.I. No. 29484) were received by mail from the Department greenhouse. Unfortunately, all plants were dead, the combination of heat and moisture while in transit proving fatal. The plants were well prepared for mailing and would have arrived in good condition during cooler weather. Two hundred Bambos arundinacea plants similarly wrapped came through all right. As the plants were very small they have been potted temporarily, preparatory to being planted in the nursery plat.

The fig orchard is being pruned for the second time this year. The plants that froze to the ground last winter are very persistent in the production of numerous basal shoots.

Some fifty native plants collected on the farm while Mr. Dewey was here and forwarded to him for identification have been mounted, classified and returned.

The maximum temperature during the week of July 20 was 108, minimum 69.

The following plats were planted during the week:

Plats D-18, 24, 25, and C-23, to dwarf milo; C-24, to a bulk planting of field corn; C-25 to fourteen al-

5 August, 1942.

FIELD NOTES.

Yuma (continued).

ternate row plantings of good and poor selections of corn No. 157, as a check on the value of the selection work to date; C-26, to corn varieties alternated with rows of selection No. 157. These corn plantings are under the supervision of Mr. Zook, of the office of Corn Investigations.

The sandy spots in the alfalfa plats A-1 to 9 have been manured and renovated.

Messrs. T. H. Kearney and C. G. Church arrived on Friday for a three days' stay. Mr. Church is analyzing the Rockyford and Emerald Gem melons being grown for Mr. Tracy's office.

Williston.

Mr. Hawley reports two very heavy rains during the first part of the week of July 27, with hail in some localities, and the week ending with very hot weather.

The grain is fast maturing and the farmers are preparing for harvest. The winter varieties are now out. The rain the first of the week was accompanied by a heavy wind, lodging and doing more or less damage to heavy grain.

10 August, 1912.

APPOINTMENTS.

In requesting appointments farm superintendents and others frequently give only the initials of the appointee or perhaps give the first name without the middle initial. The name in the appointment is, of course, always given exactly as in the request received from the field, but it frequently happens that the appointee in filling out the oath of office and personal statement sheet gives his first name and middle initial or in some other way varies from the form in which his name is given in his appointment. Every case of this kind necessitates either the return of the oath of office and personal statement for correction or the correction of the appointment, as the name must be exactly the same in the oath of office, personal statement, and appointment. In requesting an appointment it is preferred that the first name and middle initial be given, but in any event it is quite necessary that care be taken to be sure that the name is, letter for letter, the same in the appointment, oath of office, and personal statement.

FIELD NOTES.

Williston.

The week of August 3 was devoted to irrigation at the station. A large number of the farmers are irrigating now, but a heavy rain Saturday will probably make the use of irrigation water unnecessary during the current week.

All of the small fruit planted by Mr. Hawley two years ago bore well this season and attracted a good deal of attention. The fruit is large and has a very good flavor.

10 August, 1912.

FIELD NOTES.

Delta.

The maximum temperature during the week of July 27 was 95, minimum 49.

The week was devoted to cultivating potatoes, digging new ditches and blocking old ones, irrigating, and general repair work.

During the week of August 3 the maximum temperature was 88, minimum 36.5.

Dr. George W. Shaw, of the Department of Agriculture, University of California, visited the station Monday.

Yuma.

The maximum temperature during the week of July 27 was 107, minimum 71.

Weeds of all kinds have grown luxuriantly during the past month, and another man has been employed to assist in weeding plats. All ditches have been disked and cleaned and some work has been done on checks.

The bamboo received from the Department greenhouse and potted temporarily are being transplanted to the field.

A row of eucalyptus trees was planted along the east side of the farm. This planting will be extended around the farm.

Truckee-Carson.

A collection of fruit is being made for exhibition and identification purposes.

Mr. Fulkerson has been making observations in the bearing orchards of the project as to the occurrence of the codling moth. It is found in all old orchards, though not nearly so numerous as in previous years, because of the almost entire failure of the apple and pear crop last year. No work of the codling moth has yet been observed on the station orchard, as the trees have borne no fruit previous to this year.

10 August, 1912.

FIELD NOTES.

Truckee-Carson (continued)

Very little water is now coming down either the Carson or Truckee Rivers and only sufficient can now be had for irrigating the lawns and gardens. The second cutting of alfalfa will be normal, but the third will probably suffer from drought.

Prof. Brown, of the University of Nevada, came down to study the eelworm situation.

San Antonio.

The maximum temperature for the week of July 27 was 99.5, minimum 66.

The grain sorghums on the rotation plats was threshed, giving a maximum yield of 52 bushels per acre from A6-2 and an average yield of 40 bushels from the five plats.

A part of the variety test of grain sorghums on A4 was threshed, indicating what to expect from the different plantings. The highest yield was obtained from dwarf milo from the third planting, which was at the rate of 56.4 bushels per acre. This planting was made on April 1. The midges this season did not appear in numbers sufficient to do any damage before June 25, considerably later than the last two seasons.

The nursery on field C8 was irrigated the early part of the week. Also the trees and ornamental plantings on the grounds were irrigated.

Several varieties of grapes from the vineyard on A5 are ripening. To secure good specimens of the fruit it has been necessary to bag several bunches to protect them from the birds.

Scottsbluff.

Cutting of the second crop of alfalfa, which was begun July 29, was interrupted by rains Wednesday forenoon and again in the afternoon. Mr. Knorr states that so far this has been the hardest haying weather he has ever known in that locality. A great deal of the second cutting of alfalfa in the Valley

10 August, 1912.

FIELD NOTES.

Scottsbluff (continued)

is almost completely destroyed by the rain.

Thursday afternoon in about one hour's time 1.12 inches of rain fell. This rain was accompanied by a heavy wind, and much of the grain is down almost flat. The greatest damage was done to the standing alfalfa, which appears as though a roller had passed over it.

All of the dry-land grain was cut during the week.

Brome plats of rotations 10, 41, and 42 were plowed and all of the fallow plats were disked.

Sugar beets and potatoes were hoed for the last time, and a portion of the potatoes were irrigated. Present indications are that this crop will not require any more water this year.

On Tuesday, July 30, a "Farmers' Day" meeting was held at the farm. Between 250 and 300 people came out to see the work that is being done at the station.

Belle Fourche.

Maximum temperature for the week of August 3 was 91, minimum 53; precipitation, 1.62 inches.

The field operations of the week consisted of harvesting the oats in the irrigated rotation experiment, hauling in the wheat from the dry-land rotations, cultivating the sugar beets in the irrigated rotations, plowing Field E, diskings the orchard, cultivating the small fruit, orchard, and forestry plats, harvesting by hand the grains in Salmon's nursery rows on Field G, hoeing weeds, and other minor work.

The rains received August 2 and 3, amounting to about 1.5 inches, did some damage in lodging grains that were about ready to cut.

Mr. Carleton R. Ball was a visitor at the station on Wednesday and Thursday.

10 August, 1912.

FIELD NOTES.

Yuma.

The maximum temperature during the week of August 5 was 106, minimum 64. The minimum came on the night following the day on which the maximum was recorded, which is often the case.

The alfalfa seed crop is being harvested on the project. An average crop is expected. The chalcid fly (Brachophagus funebris) has caused considerable loss of seed. Samples of seed have been sent to the Entomological Laboratory at Tempe, Ariz., for determination of the percentage of insect infestation. The alfalfa nursery plat, A 13-4, showed an infestation of 34 per cent. A sample from an adjoining farm had only 13 per cent infested. Other samples will be tested. The average infestation in the Salt River Valley is 55 per cent.

Mr. T. Cuyler, representing eastern interests that are considering planting cotton on a large scale in Imperial Valley, visited the farm on Friday.

Mr. McLachlan spent the fore part of the week at the farm, leaving Tuesday night for Los Angeles.

COMPARATIVE WEATHER RECORDS FOR JULY.

	Umatilla.	Truckee- Carson.	Belle Fourche.	Yuma.
Maximum temperature	102	100	95	109
Minimum "	48	38	40	58
Mean "	71.75	69.50	69.64	85.84
Av. wind velocity	4.42	3.60	6.10	2.26
Rainfall	.05	.15	3.20	.20
Days clear	15	23		15
Days partly cloudy	11	3		13
Days cloudy	4	5		2

17 August, 1912.

APPROPRIATION BILL.

The Agricultural Appropriation Bill, signed by the President August 10, carries a total of \$16,651,496. The appropriation for this office is \$80,180, of which \$69,600 is under the "lump fund" and \$10,580 is for statutory salaries.

Under the terms of the bill the name of this office is changed to "Western Irrigation Agriculture".

FIELD NOTES.

Umatilla.

During the week ending August 3 the maximum temperature was 101, minimum 49; precipitation 0.21 inch.

The second crop of clover has been cut and taken off the fertilizer tract, Field A4, and the land is being irrigated to hasten a third, which will be plowed in. Hairy vetch (Vicia villosa) will be put in for a fall crop and will be followed by corn next year.

One nice shower has made a great difference in the appearance of the country.

The farm work is progressing satisfactorily.

Huntley.

During the week of August 3 the second crop of alfalfa was harvested, as were also the wheat, barley, and flax in the dry-land rotation field.

Beets and new alfalfa in Fields A and B were given first irrigation.

Rainfall, 0.56 inch.

17 August, 1912.

FIELD NOTES.

Belle Fourche.

The maximum temperature during the week of August 10 was 86, minimum 47; precipitation 0.05 inch.

The plowing of fields D and E has been completed, and the plowing of H-II is about half finished. Field operations for the week included harvesting wheat and oats in the irrigated rotations, mowing grains on fields F and G, and harvesting and shocking oats on fields O and P. The last operation is about half completed.

Messrs. Aune and Mattice on Saturday visited some of the farming territory south and southwest of Newell and found the crops under irrigation in fine condition. The grains are now being harvested and in many places the second cutting of alfalfa is being made.

Truckee-Carson.

During the week of August 3 the maximum temperature was 96, minimum 44; greatest daily range, 44.

Mr. Headley made trips to Stillwater and Fernley to inspect the cooperative experiments at those points.

A pipe line has been laid to the evaporation tank on the hill, in order that the tank may be kept filled without hauling water, as has heretofore been necessary.

The apple crop of the project this season is unusually heavy and a very good quality of fruit produced. The codling moth is scarce this year.

On August 2 the wind blew a gale for twenty minutes which recorded a velocity of 72 miles per hour. Considerable fruit was blown from the trees. On the same date a precipitation of 0.18 inches was recorded, this being the greatest amount since May 9, 1912, when 0.25 inch fell.

Scottsbluff.

For the week of August 10 Mr. Knorr reports but little change in the weather — just rain enough to keep the hay wet most of the time. The hay was turned twice during the week and a little stacking was done on Tuesday and Saturday.

The wet weather is keeping the corn in a growing

17 August, 1912.

FIELD NOTES.

Scottsbluff (continued)

condition, and all indications are at this time that the frost will kill the corn before it matures. The rains at this time of year also have a tendency to make the range grass grow and thus give poor winter pasture for the stock.

All of the first cut grain was wetted through the shocks and these had to be spread out. Some of the dry land grain has now been dried out the second time.

During the week the cutting of barley and oats varieties was finished. Several of the wheat varieties were also cut, as were also all of the oat plats on the irrigated rotation plats.

The sugar factory officials are becoming very much interested in the Farm and the work being done. Some of these officials are at the station every few days.

San Antonio.

The maximum temperature for the week of August 10 was 102, minimum 73; greatest daily range, 28.

The cotton is opening rapidly and is ready for picking. Mr. Letteer spent one day selecting seed corn of the Laguna variety on the rotation plats.

The remainder of the grain sorghum varieties were threshed the middle of the week. Dwarf milo gave the largest yield, averaging 50.5 bushels for the three plantings, with Standard milo second with an average yield of 46.8 bushels. The lowest yield was obtained from Shallow, 11.7 bushels per acre.

Mr. H. M. Vinall was at the station the early part of the week. Messrs. Clark, Wells, and Meade left for Victoria on the 5th. Mr. E. B. Brown was at the farm the early part of the week, harvesting his corn varieties. The average yield obtained was about 31 bushels per acre.

The continued hot, dry weather is causing the cotton to open rapidly. No new forms have been put on for some time, so that the entire crop will be

17 August, 1912.

FIELD NOTES.

San Antonio (continued)

ready to harvest within two weeks. The yield this season will be low, except on the irrigated block.

The peach crop from the seedling orchard on E4 is ripening rapidly. Earlier in the summer indications were encouraging for definite results from these trees this season, but the continued drought from June 19 has greatly damaged all fruit, making these peaches nearly worthless as regards comparative results. All the trees bore an exceptionally heavy crop but were not able to hold them through such a long period of drought.

The orchard on C8 was irrigated and cultivated at the last of the week.

The lawn on grounds was well irrigated, the Bermuda grass having suffered much from the drought.

A new chart and plot of the ground plantings has been made, listing the plants under both San Antonio accession and S.P.I. numbers where applicable. A portion of the plantings have been labeled with zinc stakes.

COMPARATIVE WEATHER RECORDS FOR JULY.

	Huntley.	San Antonio.
Mean temperature	67.2	85.1
Maximum "	95.0	105.0
Minimum "	44.0	66.0
Rainfall	3.25	.08
Av. wind velocity	3.03	4.26
Days clear	11	7
Days partly cloudy	12	23
Days cloudy	8	1

17 August, 1912.

FIELD NOTES.

Umatilla.

During the week of August 10 the maximum temperature was 93, minimum 56; precipitation, 0.02 inch.

The routine work is being continued without interruption. Apparently the warmest weather is past and some activity is being shown on the Project by people preparing for fall seeding of alfalfa.

Watermelons have been ripening for the past week.

Delta.

During the week of August 10 the maximum temperature was 98, minimum 44.5.

Mr. Dorsett, of the office of Seed and Plant Introduction, and Mr. Beagles, of the Chico Garden, visited the farm on Saturday.

Truckee-Carson.

The maximum temperature during the week of August 10 was 97, minimum 46; greatest daily range, 44.5.

The second crop of alfalfa hay was cut on practically all of the fields during the week. Haying this season is about the same date as that of last year.

The wheat varieties were harvested and are being threshed. Samples of this grain will be placed on exhibition at the local county fair.

Bids for a 3-H.P. electric pumping plant were submitted to seven dealers. This outfit will be placed in the lower southeast portion of the farm for pumping the water from the farm ditch to the Government drain ditch in order to test the practicability of lowering the water table of the farm.

The power company controlling the waters of Lake Tahoe have acceded to a request from the local Reclamation Service officials to liberate from this lake 250 second feet of water for irrigation purposes in this project. It is estimated that this will be sufficient water to bring to maturity all crops, including a third cutting of alfalfa.

24 August, 1912.

FIELD NOTES.

Williston.

For the week of August 17 Mr. Hawley reports practically all of the grain out and threshing of varieties started. Everything is yielding well and that portion of North Dakota is promised the best crops it has ever had. The farmers are having difficulty in securing binders and binding twine to harvest their crops.

The weather continues cold and wet and early frost is feared.

Scottsbluff.

During the week of August 17 the remainder of the alfalfa hay was put up. About half of it was badly damaged in the field. Reports indicate that one-half of the first cutting and three-fourths of the second cutting of hay in the Valley was damaged by the rains.

Nearly all the grain has been out and threshing will begin as soon as the weather settles enough for the grain shocks to dry out.

Messrs. Scofield and Farrell visited the station during the week, and Mr. Spafford, of the State Experiment Station, spent two days on the Farm.

Delta.

During the week of August 17 the maximum temperature was 95, minimum 42.

Belle Fourche.

Maximum temperature during week of August 17, 88, minimum 49.

Field operations for the week included the cultivation of potatoes in the irrigated rotations, the mowing of the alfalfa plats in the irrigated rotations and along the driveway, and the harvesting and shock-

24 August, 1912.

FIELD NOTES.

Belle Fourche (continued)

ing of oats on Fields O-P and A-H.

The threshing of the oats in the dry-land rotations has been completed, the yields running from nothing to 17 bushels per acre. The threshing of the oats in the irrigated rotations has been partially completed, and the yields thus far obtained range from 40 bushels per acre for the minimum to 65 bushels maximum.

Mr. Zook visited the station on the 13th.

San Antonio.

The maximum temperature for the week of August 17 was 101, minimum 72; greatest daily range, 28; precipitation, 0.04 inch.

Two men were employed throughout the week at husking corn on the rotation plats. The yields are unusually good this year, there being from 25 to 40 bushels per acre from the plats so far gathered.

A number of plats of cotton on A5 and B5 were picked during the week, the yields of seed cotton being from 80 to 108 pounds per plat, or about 400 pounds per acre. There will be a light second picking.

The cotton on D3 was irrigated the early part of the week.

The first picking of that field was also made from the Durango variety.

Truckee-Carson.

The maximum temperature for the week of August 17 was 94, minimum 44, greatest daily range 48.

The earliest planted watermelons, which were not injured by the sand storm of June 20, are now ripening rapidly. As yet no muskmelons have ripened in the station garden. The new "Fordhook", a new muskmelon in this locality, is being grown by one of the market gardeners near Fallon. This melon has a very attractive appearance and is of the very finest quality.

24 August, 1912.

FIELD NOTES.

Truckee-Carson (continued).

Mr. Fulkerson continued his work of inspecting various orchards on the Project for the presence of diseases and insects, also to secure samples of fruit for identification and exhibition purposes.

The yields of alfalfa hay from various fields are as follows:

Field.	Yield.	Area.
N	4365	.76
Z	4885	1.5
F-9-10	1690	.48
F-13	3360	.7
F-19-20-21	3140	.93
F-29-30	1800	.76
F-22-23-24-		
25-26-27	1650	1.92
F-13-14-16-		
17-18	6910	2.47
F-5-11	1500	.74
Y	2175	

Total yield 31,465 pounds, or 15.73 tons.

Huntley.

No rain fell during the week of August 10, and corn on dry-land rotation field is beginning to burn.

All old alfalfa was irrigated, also potatoes and beets in irrigation rotation field.

During the week the flax in Field AII was harvested, also wheat and oats in irrigation rotation field. The harvesting of the second crop of alfalfa was completed. In the time and amount of irrigation flax experiment very little difference was apparent at harvest time, most plats ripening uniformly and showing an even height.

Alfalfa plats in Field A-Iv showed a mean yield per acre of 3788 pounds.

31 August, 1912.

ASSOCIATION AND SOCIETY DUES, FEES, AND EXPENSES.

Memorandum for Heads of Offices, dated August 24, and signed by the Chief of Bureau, reads as follows:

"Referring to the Secretary's General Order No. 155, calling attention to Section 8 of the Act making appropriations for the expenses of the government of the District of Columbia for the fiscal year ending June 30, 1913, which prohibits the attendance of officers or employees of the government at meetings or conventions of members of any society or association at government expense, the sundry civil appropriation bill as passed by Congress and approved by the President contains the following clauses:"

"Sec. 10. That Section 8 of the District of Columbia appropriation act, approved June 26, 1912, shall not take effect or be operative during the fiscal year 1913 except to the extent that it prohibits the payment of membership fees or dues in societies or associations; Provided, That during the fiscal year 1913 expenses of attendance of officers or employees of the Government at any meeting or convention of members of any society or association shall be incurred only on the written authority and direction of the heads of executive departments or other Government establishments or the government of the District of Columbia; and a detailed statement of all such expenses incurred from June 30 until December 1, 1912, shall be submitted to Congress on or before January 1, 1913."

31 August, 1912.

PUBLICATION.

Memorandum for Heads of Offices No. 21, dated August 19, and signed by the Chief of Bureau, reads as follows:

"Suggestions Regarding Articles for Publication.

It frequently happens that Bureau men, especially those who are located permanently at points in the field, are requested to furnish matter for publication in local newspapers and similar publications in the form of articles on definite subjects relating to agriculture. Such requests are increasing in number, and in view of the active interest in agricultural matters will probably continue to do so. While in each case the wisdom and propriety of acceding to such requests must of necessity be separately determined, there is no objection to the preparation for publication in local or regional papers of suitable articles on topics relating to the work of the individual of whom the request is made.

If the subject to be discussed relates specifically to a line of work conducted by one of the research offices of the Bureau, such an article should of course be submitted to that office for criticism if it goes beyond the published and generally accepted results of such work.

It is probably not often the case that special articles relating to definite lines of work under way in the Bureau can be as well or as appropriately discussed by men outside of those lines of work as by the specialists engaged upon them. This is especially true when publication in periodicals of general rather than local circulation is involved, and in all cases where the publication of such articles is contemplated it is suggested that the matter be taken up with the Chief or Acting Chief of Bureau with a view to avoiding the complications that might result from indiscriminate publication.

Of course all articles relating to the work of the Department which are intended for outside publication should be submitted in duplicate for proper approval before publication as heretofore, in order that the central Bureau file may contain copies of all matter for publication eman-

31 August, 1912.

Publications (continued)

ating from the Bureau relating to official work.

These suggestions are not intended to restrict freedom of publication by individuals, but merely to indicate a way through which such freedom may be exercised with a minimum of complication and confusion."

SPECIAL PERSONAL EQUIPMENT.

General Order No. 156, dated August 19, and signed by the Secretary, reads as follows:

"Hereafter employees engaged in extraordinary lines of work, requiring special equipment, will be furnished with necessary articles of a personal nature and which are not of the kind ordinarily worn by employees when off duty, such as overalls, cook caps, rubber and other gloves, rubber boots, eye-shades, goggles, reading glasses, white suits, linen dusters, etc. Supplies of this character may be obtained in the same way as other supplies which the Department purchases out of available appropriations and keeps in stock. Employees on lump fund rolls will not be reimbursed on account of the purchase of such articles, except in cases where remoteness of situation or other like cause makes it impossible to procure them otherwise, and then only when the contract of employment authorizes the purchase of the articles. Employees on the statutory roll can not be reimbursed for purchases of personal equipment under any circumstances.

All articles of the kind described herein become the property of the United States, and must be accounted for as in the case of all other public property."

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31 August, 1913.

FIELD NOTES.

Yuma.

During the week of August 10 the maximum temperature was 111, minimum 63.

The third cutting of alfalfa was taken from field plats D 8 to 17.

Eucalyptus trees were planted on the south side of the farm.

Corner posts and second posts for the farm fence have been put in place. These consist of 6"x3" redwood set in concrete, with 14 foot 4" x 4" braces. An entrance gateway and overhead sign has been constructed and automatic gate installed.

About two-thirds of the bamboos which were recently received from the Department greenhouse and transplanted temporarily into pots have been planted, a part in the nursery plat A 15-1 and a part on C 36.

During the week of August 17 the maximum temperature was 105, minimum 61.

Upon the request of Mr. Estabrook, samples of Bermuda grass seed were forwarded to him for germination and purity tests. Mr. Estabrook is of the opinion that the high price of Bermuda grass seed justifies the growing of such seed for market. From an area of 21 sq. ft. 169.1 grams of clean seed was harvested. This is at the rate of 775 pounds per acre. In 1907 a small area was harvested which yielded at the rate of about 680 pounds per acre. These yields could be duplicated it is believed under cultural conditions on a field scale.

It seems reasonable to suppose that Yuma Valley could supply this country's demand for Bermuda grass seed by utilizing present waste land, such as areas subject to seepage or that are being reclaimed from alkali. It will grow where underground water comes to the surface, a condition disastrous to all crops grown here at present. It also withstands considerable alkali and on account of the rapidity with which it spreads when it once secures a scattered stand it should be useful in reclaiming such areas.

31 August, 1912.

FIELD NOTES.

Scottsbluff.

Threshing was begun Monday, August 19. Most of the grain is yielding very well, but it is all discolored on account of the rains.

Series III, IV, and V, on Field H, were seeded to alfalfa; also plats 8 Series I, 13 Series IV, and 13 Series V, on Field K. Rye was also seeded on plat 5, Series I, Field K.

One team was busy part of the time getting land in shape for winter wheat.

Delta.

The maximum temperature for the week of August 24 was 91.5, minimum 40.

The week was devoted to cultivating and hilling potatoes, hoeing weeds, digging ditches, and irrigating.

Col. John P. Irish visited the farm Monday, and Francisco M. Cardenas, of the University of Wisconsin, and a resident of Saltillo, Coahoma, Mexico, called Thursday.

The Delta Association and friends held a business and social meeting at the farm Saturday. Col. John P. Irish and Carson C. Cook, Manager of the Rindge Land and Navigation Company, were in attendance.

Williston.

Mr. Hawley reports the station grain all in the shock and threshing progressing as rapidly as the weather will permit. The grain is yielding well. The wheat shelled very badly this year, especially the bluestem variety.

The nights have been very cold, but as yet no frost has been reported.

Owing to frequent rains, not much irrigation has been necessary.

The largest part of the second cutting of alfalfa spoiled as the first was by heavy rains.

1000

1000

1000

1000

1000

1000

1000

1000

31 August, 1912.

FIELD NOTES.

San Antonio.

The maximum temperature for the week ending August 24 was $99\frac{1}{2}$, minimum 71; greatest daily range 27. The week was cloudy and threatening, but the total precipitation was only 0.21 inch.

Corn husking on the rotation plats was completed. The yields were good, the highest being at the rate of 45.4 bushels per acre from Plat B6-8, the system of rotation being corn and cotton alternating, manured after corn. The lowest yield was at the rate of 24.5 bushels per acre.

Cotton picking on the rotation fields was continued. The yields are somewhat better than at first expected.

Mr. G. E. Thompson, of Forage Crop Investigations, was at the Farm on the 22nd and 23rd. Also Messrs. Gentry, Quicksall, and Paine on the 23rd.

Mr. Hastings attended the Dry Farming Congress held at Uvalde on the 21st and 22nd.

Belle Fourche.

Maximum temperature for the week of August 24, 94, minimum 45; precipitation, 0.43 inch.

Field operations for the week included the threshing of oats and wheat on the irrigated rotation plats. The best yield of wheat was 34.5, poorest 10; best yield of oats 80, poorest 35. The variety grain on both the dry and irrigated plats have been threshed. The winter wheat in the continuous cropping has been seeded, also alfalfa on disked stubble ground. The plowing of plats 31-36 in Series II and III Field A, and all of series III, Field H, was completed. The hauling of manure on plats on both the dry and irrigated rotations was also completed. The fall plowing on the dry land rotations is about half completed.

The variety millet for hay, Field G, was cut. Yields, 3 to $3\frac{1}{2}$ tons per acre.

During the week Mr. Scofield, Mr. Farrell, and Mr. Kearney visited the station.

31 August, 1912.

FIELD NOTES.

Umatilla.

The maximum temperature for the week of August 17 was 94, minimum 47; precipitation 0.36 inch.

Arrangements have been made at several places in the vicinity of Stanfield for the carrying out of cooperative arrangements in the growing of cover crops. Nothing of this kind has been used on that Project as yet, so this work is being taken up to demonstrate its value on soils characteristic of that locality.

The third crop of alfalfa has been cut from the plats where this crop is being used.

The unusual number of weeds infesting the irrigated districts are causing trouble, and show clearly the extent to which water brings them on to new land from infested ditch banks.

7 September, 1912.

JURAT FEES.

General Order No. 160, dated August 24, 1912 (received in this office September 3), and signed by W. H. Hays, Acting Secretary, reads as follows:

"Attention is invited to the following provision in the Act, approved August 24, 1912, making appropriations for the Sundry Civil Expenses of the Government for the fiscal year ending June 30, 1913, and for other purposes:"

"Sec. 8. After June thirtieth, nineteen hundred and twelve, postmasters, assistant postmasters, collectors of customs, collectors of internal revenue, chief clerks of the various executive departments and bureaus, or clerks designated by them for the purpose, the superintendent, the acting superintendent, custodian, and principal clerks of the various national parks and other Government reservations, superintendent, acting superintendents, and principal clerks of the different Indian superintendencies or Indian agencies, and chiefs of field parties, are required, empowered, and authorized, when requested, to administer oaths, required by law or otherwise, to accounts for travel or other expenses against the United States, with like force and effect as officers having a seal; for such services when so rendered, or when rendered on demand after said date by notaries public, who at the time are also salaried officers or employees of the United States, no charge shall be made; and on and after July first, nineteen hundred and twelve, no fee or money paid for the services herein described shall be paid or reimbursed by the United States."

"Under the provisions of the foregoing paragraph, all oaths to accounts for travel or other expenses against the Department of Agriculture must be administered by the officials named in the provision without charge, and on and after July 1, 1912, no fee or money paid for administering oaths to such accounts shall be paid or reimbursed by the Department of Agriculture.

All previous orders and fiscal regulations in conflict with the above are hereby revoked."

7 September, 1912.

FIELD NOTES.

Yuma.

During the week of August 24 the maximum temperature was 110, minimum 61.

A census of the fifty date palms received from Tempe in June and planted in temporary nursery rows shows three dead; all the remainder having made some growth.

The half of the house basement having a dirt floor has been filled in and concreted in order to exclude seepage water, which has been rather troublesome this summer, especially for a few days following irrigations.

The fig orchard has made a good growth, the trees now averaging four to five feet in height. It is planned to give this orchard one more irrigation and then to withhold moisture and force the wood to mature early.

The farm has been fenced on the east and south sides with 52" woven wire Ellwood fencing.

The maximum temperature during the week of August 41 was 105, minimum 72.

The hemp on C 26 has been harvested and left in the field in shocks. Seed yield tests will be made from the plat as a whole and from some of the better areas within the plat. The marked difference in growth between the sandy spots and those having good soil proves conclusively that hemp requires medium or heavy soil for best production. The plants seem to be fruiting normally. Bird depredations will materially affect the seed yield.

Field A 13-2 has been prepared for a fall and winter garden.

The dwarf milo on D 46 has been harvested.

Mr. E. G. Smith, the farm clerk for over a year, has resigned his position and returned to his home in Kansas, where he will enter college.

Mr. L. L. Zook visited the farm on the 20th.

7 September, 1912.

FIELD NOTES.

Umatilla.

During the week of August 24 the maximum temperature was 102, minimum 48.

An acre of ground was broken, irrigated, and seeded to sweet clover as part of a test of sweet clover, alfalfa, and red clover crops to be turned under to improve the soil.

Field C1b, which has an annual winter cover crop, was seeded to hairy vetch (Vicia villosa) and irrigated.

Fields D1c and D2 were graded with a fresno and rye straw was disked in, to prevent blowing of the soil.

Scottsbluff.

With the exception of some feed grain and a few odds and ends, threshing was completed Tuesday, the 27th. Satisfactory yields were obtained from all of the work. Some of the yields are as follows:

DRY LAND.					
	Rotation.	No. Bu.*	Av. of Crop.		
Oats	11	B 63.1			
"	3	P 8.4	34.3		37 plats,
Winter wheat	118	B 23.0			
" "	MCB	P 6.3	15.1		8 "
Spring "	18	B 33.0			
" "	9	P 5.7	17.0		27 "
Barley	MCC	B 39.9			
"	MCA	P 21.3	26.7		7 "
B-Best; P-Poorest. MC- moisture conservation series.					

<u>IRRIGATED.</u>				
Oats	48	B	118.5	
"	30	P	81.3	Average, 96.6 bu.
Wheat	48	B	52.5	
"	5	P	41.0	Average, 46.2 bu.
Barley, Highest	70.7		bu.	
" Lowest	40.2	"		

All of the early potatoes were dug during the week. The Early Ohio's started to make a second growth and had to be harvested. As these potatoes are still in the field, yields cannot now be given.

7 September, 1912.

FIELD NOTES.

Huntley.

During the week of August 24 grains on both dry land and irrigation rotation fields were threshed.

Fifteen plats of oats on the irrigation rotation yielded an average of 48.7 bushels per acre, and three plats of wheat yielded an average of 25.3 bushels per acre. In the dry land rotations 22 plats of wheat yielded an average of 7.5 bushels per acre, and 29 plats of oats an average of 8.7 bushels per acre. Six plats of barley in the dry land rotations yielded an average of 4.7 bushels per acre.

Flax from both dry land and irrigated rotations came from the machine too dirty to give accurate yields. These yields will be obtained when the flax is recleaned.

Truckee-Carson.

The maximum temperature during the week of August 24 was 95, minimum 39.

Following are the yields of hay from the second cutting of the different varieties of alfalfa on Field F-15:

Varieties.	Yield in: Pounds	Yield in: Pounds	Total Yield.
	Series 1	Series 2	
Caucasus	65	70	135
M. ruthenica	--	--	--
Arabian	55	40	95
Peruvian	80	60	140
Grimm	70	85	155
Sand Lucerne	65	50	115
Turkestan	65	55	125
Montana	70	55	120
Canadian	80	55	135
Western Grown	80	65	145
Province	60	60	120
Elche	75	45	120

A total of 1400 pounds of alfalfa hay was obtained from this plat.

The wheat and oat varieties were threshed.

7 September, 1912.

FIELD NOTES.

Williston.

Mr. Hawley reports the weather cool, with local rains.

The station threshing was finished August 27. All crops yielded well, wheat running from 25 to 51 bushels per acre, oats from 65 to 90 bushels per acre. The second crop of alfalfa was very good, but a marked difference was noted where watered and unwatered, thus proving irrigation to be beneficial, even with as much rainfall as had this season.

Mr. Farrell spent three days at the station during the latter part of the week and left for the West Monday morning.

Belle Fourche.

Maximum temperature for the week of August 31, 95, minimum 54; precipitation, 0.06 inch.

During the week the manured plats on the dry-land rotations were plowed and harrowed; the threshing of the grains in the irrigated rotations has been practically completed; the flax in the irrigated rotations and the alfalfa on field C have been harvested; the sugar beets irrigated; the potatoes in the irrigated rotations have been sprayed; and the garden and pine nurseries have been irrigated.

The planting of the winter wheat varieties on the dry-land has been completed.

Mr. Carr returned Thursday from a trip in the Hills, bringing back specimens and seeds of the shrubs found in the Spearfish canon, including the native plums, pin and choke cherries, salmon berry, raspberries, service berries, barberry, and the Canada buffalo berry. Several forms of Salix were found in the canon, along with the white and red fruited dog-woods, elm, paper and red birches, etc.

14 September, 1912.

FIELD NOTES.

Scottsbluff.

For the week of September 7 Mr. Knorr reports as follows:

Temporary pits were made for storing the potatoes that were dug during the previous week. The best yields obtained so far from the early varieties of potatoes was 525 bushels per acre, and the lowest yield 94 bushels per acre.

The same disease that caused a total potato failure last year has been the cause of the low yields.

The fall plowing of the dry land plats was completed during the week, and the fall plowing on Field K is half done.

The winter wheat was seeded on the dry land plats and also on Field K. The winter wheat varieties were put in Friday.

The corn on the dry land is drying up fast, and the cutting of this is half done. The irrigated corn is still very green, most of it being in the "milk".

The ten 1/4 acre plats of alfalfa in the irrigation experiment have been cut and hauled.

Delta.

The maximum temperature during the week of September 7 was 83, minimum 45.

There was a slight rain beginning at 11 p.m. September 2, another beginning at 3 p.m. September 3, and on September 6 there fell the heaviest rain of the season, in fact, the heaviest downpour noted in this county on a corresponding date in nearly half a century. Some grain, barley, and a little hay have been damaged, and that done to grapes (it is reported) will depend largely upon the weather subsequent to the storm. 1.34 inches of rain fell from 7.30 a.m. to 10.00 p.m.

Mr. L. P. Byars, of the office of Cotton and Truck Diseases and Investigations, visited the farm on Wednesday, in quest of the eelworm, but found none.

14 September, 1912.

FIELD NOTES.

Belle Fourche.

During the week ending September 7 the maximum temperature was 91, minimum 41; no rainfall.

During the week the alfalfa in the irrigated rotation experiment was irrigated, the small fruits plat irrigated, the plat of winter rye on field H-15 seeded, and the brome grass on field G and alfalfa on field C were cut. The oats in field O and P have been stacked. Three of the flax plats in the irrigated rotations have been threshed, but yields cannot be given until the seed is run through the fanning mill.

Umatilla.

During the week of August 31 the maximum temperature was 94, minimum 41.

The irrigation work progressed much as usual. A decrease in the amount of evaporation has been noticeable, so that irrigations will not need to be as frequent in the future.

A heavy rain, amounting to 0.5 inch, fell during the week, which is very unusual in this section at this time of year.

Soil moisture work is being carried on.

Huntley.

During the week ending August 31 the oats in field CIII were threshed, and also flax in the dry land rotation field.

Beets and potatoes in the irrigation rotation field were given the last irrigation of the season. Alfalfa in field AIV was also irrigated.

Messrs. Scofield and Farrell left the station Wednesday night. Messrs. Atkinson and Swingle, of the Montana Agricultural Experiment Station, and also Messrs. Cole and Stephens visited the station the fore part of the week.

14 September, 1912.

FIELD NOTES.

San Antonio.

The maximum temperature for the week ending August 31 was 101, minimum 68.

Cotton picking on the rotation plats was continued throughout the week, but was not completed.

The plowing of the plats from which the corn has just been harvested was started. Plats A5-5-10-14 and A6-1-5-10-12 were plowed. The ground is very dry and hard and plowing is somewhat difficult.

Messrs. Meade, Blair, and Wells spent the latter part of the week at Crystal City and Laredo.

The final picking of cotton on AB8 was completed. The variety test of cotton on A5-2 was picked the early part of the week, the yields varying from 736 to 536 pounds of seed cotton per acre. Two selections of Triumph grown at the Farm for the past five years proved the best, quality considered, and outyielded the original Triumph seed by over 200 pounds per acre.

Huntley.

During the week of September 7 the maximum temperature was 89, minimum 39; precipitation, 0.71 in.

Winter wheat and rye were seeded in the dry land rotation field. Dry land corn was cut and is generally not very well filled -- suffered some from drought.

Winter wheat on irrigation rotation field was seeded.

Alfalfa in Field A-I was harvested.

Wheat in Field A-III (nurse crop plats) was threshed. The average yield of grain and straw from the four plats was 1578.75 pounds, of grain 662.75 pounds; average yield per acre 44.18; highest yield 49.5 bushels, lowest 39.8.

Fourteen plats of oats in CIII gave an average yield of 58.06 bushels per acre; highest yield 91.7, lowest 35.4 bushels.

14 September, 1912.

TRAVEL.

Departmental General Order No. 158, dated August 24, and signed by Secretary Wilson, is made a part of this issue of the BULLETIN as pages 128 and 129, and careful attention is invited thereto.

This order, which is in accordance with a provision contained in the current Agricultural Appropriation Bill, places all officers and employees of the Department, when traveling on official business, on a per diem allowance in lieu of subsistence.

In a memorandum signed by the Chief of the Bureau, dated August 28, enlarging upon the above-mentioned General Order, it is stated that the rates given therein are the maximum for general interstate travel, and the following intra-state rates are promulgated:

"(4b) Travel wholly within the boundaries of a single state in which the permanent or temporary station is located (including travel across a state boundary to make train connections):

Disregarding the classes of employees shown in paragraphs 3 and 4a, the following maximum per diem rates in lieu of subsistence may be allowed:

(1) In states east of the Mississippi River and south of the Potomac and Ohio Rivers, and west of the Mississippi River to include Louisiana, Arkansas, Oklahoma, and Texas, not to exceed \$2.50 per diem.

(2) In states east of the Mississippi River and north of the Potomac and Ohio Rivers, not to exceed \$3.75 per diem.

(3) In the remaining states west of the Mississippi River, not to exceed \$3.00 per diem.

Where the allowance of the maximum per diem rates prescribed in this paragraph would involve increased expense to any office, the head of that office will specify in his requests for letters of authorization and letters of instruction, such lower rates as in his judgment and in the light of his knowledge of local conditions may seem equitable and proper.

DEPARTMENT OF AGRICULTURE,

OFFICE OF THE SECRETARY,

WASHINGTON, D. C.

128

August 24, 1912.

GENERAL ORDER No. 158.

The act making appropriations for the Department of Agriculture for the fiscal year ending June 30, 1913, provides:

"That hereafter, when officials and employees of the Department of Agriculture are traveling on official business in the United States, they may be allowed necessary railroad and steamboat fares, sleeping berth, and stateroom on steamboats, livery hire and stage fare, and other means of conveyance between points not accessible by railroad, but in lieu of subsistence and all other traveling expenses they may receive a per diem allowance, to be fixed by the Secretary in each case, in addition to their regular salaries, subject to such rules and regulations as the Secretary of Agriculture may prescribe."

Under the provisions of the foregoing paragraph, all officers and employees of the Department of Agriculture on statutory and lump-fund rolls, when traveling on official business of the Department in the United States, on and after October 1, 1912, will be reimbursed for actual expenses incurred for necessary railroad and steamboat fares, sleeping berth, and stateroom on steamboats, livery hire and stage fare, street car, transfer coach and omnibus fares, transfer of baggage between depots and hotels, and other means of conveyance between points not accessible by railroad, but in lieu of subsistence and all other traveling expenses they will receive a per diem allowance, in addition to their regular salaries, not to exceed the maximum amounts set forth in the following classification. The chief of the particular bureau, independent division, or independent office, under whose direction the travel is to be performed, will recommend to the Secretary, in the request for authorization of the travel, the rate per diem which each officer and employee should receive, which rate must not exceed the maximum rate of the class to which the officer or employee belongs, as shown below, but may be as much less as the chief of bureau deems to be equitable and economical, taking into consideration the official position of the traveler, the character of the duties the traveler is called upon to discharge in connection with the travel, and the section of the country to be visited. All current letters of authorization will be amended in accordance with this order, and chiefs of bureaus, independent divisions, and offices will submit their recommendations to the Secretary as soon as practicable. In urgent or emergency cases, or where the station of the traveler is so remote as to render it impracticable to obtain the approval of the rate by the Secretary in advance of the travel, the officer or employee in charge may fix the rate, subject to the approval of the Secretary, but under no circumstances shall the rate so fixed be in excess of the maximum rate herein set forth.

CLASSIFICATION AND MAXIMUM PER DIEM ALLOWANCES FOR TRAVEL IN THE UNITED STATES BY OFFICERS AND EMPLOYEES OF THE DEPARTMENT OF AGRICULTURE.

- CLASS A.—By the chief clerk of the department, solicitor of the department, chiefs of bureaus, and chiefs of independent divisions and offices, not to exceed five dollars per diem.
- CLASS B.—By officers and employees performing important scientific or professional work in the field, not to exceed four dollars per diem.
- CLASS C.—By officers and employees performing field duties of a supervisory character, not to exceed four dollars per diem.
- CLASS D.—By officers and employees subordinate to and assisting those in charge of field work, not to exceed three dollars and fifty cents per diem.
- CLASS E.—By clerical employees performing administrative or executive work in the field, not to exceed three dollars and fifty cents per diem.
- CLASS F.—By subclerical employees, not to exceed three dollars per diem.
- CLASS G.—By artisans, skilled trade, and other employees not included in the foregoing classes, not to exceed three dollars per diem.

Provided, however, that such per diem allowances as are specified above shall be increased one dollar in the cities of Albuquerque, Atlanta, Baltimore, Boston, Buffalo, Chicago, Cincinnati, Cleveland, Denver, Detroit, Indianapolis, Kansas City (Mo.), Los Angeles, Milwaukee, Minneapolis, Missoula, New Orleans, New York, Ogden, Philadelphia, Pittsburgh, Portland (Oreg.), Seattle, Saint Louis, Saint Paul, Salt Lake City, San Francisco, and Washington, when the traveler remains one-half day or longer (two meals, or one meal and one lodging to be considered as a half day). On days for which the higher rate is claimed the account must show plainly that expenses were incurred for at least a half day.

The following travel expense items will be included in and covered by the per diem allowance: Baths, laundry, meals and lodging, fees to waiters, pullman fares in parlor or chair cars, fees to porters in sleeping cars, parlor or chair cars, steward fees, and the checking and portage of baggage at hotels and depots.

The following expense items are not included in and covered by the per diem allowance, and will be allowed in addition thereto in accordance with the Fiscal Regulations: Cash fares on railroads and steamboats, cash paid for a sleeping car berth and berth on steamboats, street car, transfer coach and omnibus fares and transfer of baggage between depots and hotels, and telegraph and telephone messages on official business. Use of hotel room in the daytime for the transaction of official business will only be allowed when specifically approved by the Secretary. When meals are included in steamboat fare, a per diem allowance in lieu of subsistence will not be allowed.

Except as otherwise provided herein, fractional parts of a day will not be regarded as a whole day in the allowance of per diem in lieu of subsistence in connection with official travel, but for any fractional part of a day one-half of a full day's per diem will be allowed. Provided, that an employee leaving his official station after supper, or arriving at his official station before breakfast, will not be allowed subsistence for those days. The day and hour of beginning and ending travel, and the first and last items of expense incurred, must be clearly stated in the account. When the travel begins and ends the same day, a per diem allowance in lieu of subsistence will not be allowed, but the actual and necessary expenses incurred will be allowed in accordance with the Fiscal Regulations.

The Fiscal Regulations of the Department of Agriculture are amended accordingly.

TRAVEL IN FOREIGN COUNTRIES.

Travel in foreign countries, when authorized, will be performed in accordance with the Fiscal Regulations of the Department, as heretofore.

James Wilson
Secretary.

14 September, 1912.

SCIENTIFIC ASSISTANT, Civil Service Examination Announced.

Announcement has been made by the Civil Service Commission of an examination to be held October 16-17 for the position of Scientific Assistant, Department of Agriculture. Candidates will be given the following subjects:

Agronomy.	Library Science	Seed Testing.
Dairying.	Nutrition of Man	Soil Bacteriology.
Entomology	and Calorimetry.	Soil Chemistry.
Farm Management.	Plant Breeding.	Soil Surveying.
Forage Crops.	Plant Pathology.	
Horticulture.	Pomology.	

Among the numerous points at which this examination may be taken are the following:

Douglas	ARIZONA.	Prescott.
Phoenix		Tucson.
	CALIFORNIA.	
Fresno.		San Diego.
Los Angeles.		San Francisco.
Sacramento.		Red Bluff.
	MONTANA.	
Billings.		Helena.
Bozeman.		Great Falls.
	NEVADA.	
Carson City.		Reno.
	OREGON.	
Corvallis.		Baker City.
Portland		Pendleton.
	SOUTH DAKOTA.	
Aberdeen.		Watertown.
Pierre.		Deadwood.
	TEXAS.	
Austin.		San Antonio.
Dallas.		El Paso.
Amarillo.		Waco.

A limited supply of these announcements are on hand in this office and may be had upon application.

PERSONAL.

It is announced that Mr. W. A. Peterson and Miss Carrie May Warden were married at South Pasadena, Cal., September 5, 1912.

14 September, 1912.

FIELD NOTES.

GRAIN YIELDS AT SCOTTSBLUFF.

Mr. Holden has reported the following grain yields at the Scottsbluff Farm:

	<u>Plat.</u>	<u>Bushels per acre.</u>
WHEAT.	1-III	42.1
	18-III	41.0
	18-IV	44.2
	12-V	52.5
	16-V	50.0
	18-V	47.2
	Average, 46.2	
OATS.	15-I	82.4
	12-I	93.7
	8-0	98.6
	5-I	97.5
	3-I	90.8
	4-II	99.6
	7-II	97.6
	4-III	81.3
	7-III	88.8
	12-III	94.4
	16-III	97.6
	2-IV	86.4
	4-IV	82.4
	7-IV	84.5
	13-IV	117.0
	17-IV	108.1
	13-V	118.5
	17-V	112.2
	Average, 96.6	

21 September, 1912.

CIVIL SERVICE.

General Order No. 163, dated August 30, 1912, and signed by W. M. Hays, Acting Secretary, reads as follows:

"Procedure to be followed in case of removal of persons in the classified civil service of the United States;

The right to petition Congress and to furnish information, etc.

The following extract from the act making appropriations for the service of the Post Office Department for the fiscal year 1913, H. R. 21279, approved August 24, 1912, is quoted for the information and guidance of the officers and employees of the Department of Agriculture: "

'Sec. 6. That no person in the classified civil service of the United States shall be removed therefrom except for such cause as will promote the efficiency of said service and for reasons given in writing, and the person whose removal is sought shall have notice of the same and charges preferred against him, and be furnished with a copy thereof, and also be allowed a reasonable time for personally answering the same in writing; and affidavits in support thereof; but no examination of witnesses nor any trial or hearing shall be required except in the discretion of the officer making the removal; and copies of charges, notices of hearing, answer, reasons for removal, and of the order of removal shall be made a part of the records of the proper department or office, as shall also the reasons for reduction in rank or compensation; and copies of the same shall be furnished to the person affected upon request, and the Civil Service Commission shall also, upon request, be furnished copies of the same; Provided, however, That membership in any society, association, club, or other form of organization of postal employees not affiliated with any outside organization imposing an obligation or duty upon them to engage in any strike, or proposing to assist them in any strike, against the United States, having for its objects, among other things, improvements of con-

21 September, 1912.

Civil Service (continued)

dition of labor of its members, including hours of labor and compensation therefor and leave of absence, by any person or groups of persons in said postal service, or the presenting by any such person or persons of any grievance or grievances to the Congress or any Member thereof shall not constitute or be cause for reduction in rank or compensation or removal of such person or groups of persons from said service. The right of persons employed in the civil service of the United States either individually or collectively, to petition Congress, or any Member thereof, or to furnish information to either House of Congress, or to any committee or member thereof, shall not be denied or interfered with.'"

FIELD NOTES.

Yuma.

The maximum temperature during the week of September 7 was 100, minimum 53.

The sixth crop of alfalfa was harvested during the week and a fair yield will be had at the next cutting.

Plats C 8 to 17, fig plantings, are being pruned and suckers removed. As a result of the severe freeze last winter the trees have suckered badly, necessitating several prunings to give shape.

The hemp on C 26 is being threshed by hand.

All plats are being hoed and weeded, as the weeds from now on do not grow rapidly.

Bids for a 15-foot galvanized steel tower to support a tank 12 feet in diameter have been sent to three different firms.

21 September, 1913.

FIELD NOTES.

Truckee-Carson.

During the week of September 7 the maximum temperature was 83, minimum 34; precipitation 0.42 in.

The following table gives the result of the fertilizer test with Red Ohio potatoes:

Fertilizer.	:Length :of row :in feet.	: Total : Yield, : Pounds.	: Yield : per 100 feet : of row.
Check	: 114	: 73	: 64.0
Complete with gypsum	: 112	: 70	: 62.5
Check	: 111	: 63	: 56.8
Complete	: 110	: 65	: 59.0
Check	: 110	: 74	: 67.3
Acid fosfate	: 110	: 90	: 82.0
Check	: 109	: 81	: 74.3
Sulfate potash	: 107	: 75	: 70.0
Check	: 106	: 48	: 45.5
Nitrate soda	: 106	: 62	: 58.5
	: :	: :	: :

Hills very uneven in yield and size; all well shaped and clean product.

The buildings on the farm have all been wired and are now ready for electricity.

A light frost occurred on the 5th.

Delta.

During the week of September 14 the maximum temperature was 93.5, minimum 46.

Mr. F. D. Farrell visited the station during the week.

Mr. Stelle, of the W. E. Baxter Company, of Los Angeles, experimented in peat soil with a new potato digger on land of the Rindge Land & Navigation Company.

THE UNIVERSITY OF CHICAGO

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21 September, 1912.

FIELD NOTES.

San Antonio.

During the week of September 7 the maximum temperature was 100, minimum 68.5; greatest daily range 31; precipitation 0.09 in.

The plowing of corn plats was continued, and the first picking of cotton on the rotation plats was completed.

The nurseries on D3 and C8 were irrigated, and also the trees and ornamental plantings on the grounds. In the nursery a number of buds of plums, prunes, peaches, and almonds were set on Mexican peach stock. These Mexican peaches are proving very drought enduring and grow well in the strong lime soils. With these qualities it is hoped it will make a desirable stock for drupe fruits of this section, and a test of this kind is being attempted. The wild peach from China (Amygdalus davidiana) is proving to be exceptionally good stock, but the difficulty of securing seed has thus far made this an impossibility for propagators. All the seeds from a large crop of Mexican peaches are being retained this season from the orchard E4.

Budwood was received from Chico, Cal., of several varieties of Pistacia vera and worked on Pistacia chinensis stock in nursery on D3.

The maximum temperature for the week of September 14 was 101, minimum 69.5; greatest daily range, 31.5.

The second picking of cotton on the rotation plats was made. The yields were very light. The highest total yield of cotton was at the rate of 818 pounds of seed cotton per acre, from plat B6-9, and the lowest yield was at the rate of 406 pounds per acre, from A4-2, which was summer fallowed last year. The average yield of 25 plats of cotton in the rotation experiments was at the rate of 614 pounds per acre.

A part of the sorghum from the rotation plats was hauled in during the week.

Budding has been done in the nursery on A5, working on Mexican seedling peach stock buds from the desirable seedling varieties from the orchard on E4.

1. *Pharmaceutical industry* – The pharmaceutical industry is the largest of the three industries, with sales of \$10.5 billion in 1997. It is the only industry that has not experienced a decline in sales since 1990. The industry is dominated by a few large firms, with the top five firms accounting for 40% of sales. The industry is characterized by high R&D expenditures, which are a result of the high costs of developing new drugs. The industry is also characterized by high barriers to entry, which are a result of the high costs of developing new drugs.

21 September, 1912.

FIELD NOTES.

San Antonio (continued)

Budwood was received from Iowa of an exceptional tree of the species Juglans nigra which produces nuts of rare quality of this walnut. The nut has a shell reasonably smooth, of medium thickness, and a very fine, large kernel. It is undoubtedly worthy of propagation. This tree has long been treasured by the owner, who found it growing on his land but never propagated. As the Juglans nigra is also a native of south Texas, this nut should do well here. Several buds were set in stock growing in the nursery of F. F. Collins, where plenty of artesian water is available for irrigation.

The trees and ornamental plantings on the grounds were given a thorough irrigation.

Belle Fourche.

The maximum temperature during the week of September 14 was 75, minimum 35; precipitation 2.13 inches.

The weather has been so rainy during the week that only a small amount of field work could be done. This, however, included the plowing of the fall plowed grain plats on the irrigated rotations, hoeing weeds, repairing irrigation ditches on fields O and P.

The flax seed that was threshed cut during the previous week was run the fanning mill, and yields will be reported later.

On Thursday afternoon a severe hail storm ruined the garden crops, with the exception of the root crops, and did severe damage to the trees and more or less damage to the sugar beets.

28 September, 1912.

EXCEPTED POSITIONS.

General Order No. 164, dated September 3, 1912, and signed by W. M. Hays, Acting Secretary, reads as follows:

"Attention is invited to the following Executive Order amending Subdivisions I and IX of Schedule A of the Civil Service Rules, respecting appointments to positions excepted from examination by the Civil Service Commission.

'Subdivision I of Schedule A of the Civil Service Rules will be amended by the addition of a section containing the substance of the Executive Order of December 1, 1910, and reading as follows:

15. Positions of unusual character as to duties or compensation and for which qualified persons are so rare that in the judgment of the Commission they cannot in the interests of good civil service administration be filled through competitive examination. Prior consent of the Commission must be obtained for appointments under this clause.

Subdivision IX of Schedule A will be amended by striking out section I thereunder and substituting the following:

1a. Agents employed in field positions the work of which is financed jointly by the Department and cooperating persons or organizations outside the Federal service.

b. Local agents outside of Washington, engaged in demonstrating in their respective localities the advantages of scientific methods of agriculture. Agents of this class must be representative farmers whose ability and personality make them leaders in their respective communities.

c. Local Agents, except veterinarians, employed outside of Washington in demonstrating in their respective localities the necessity of eradicating cattle ticks, scabies, hog cholera and animal tuberculosis, and other contagious or infectious animal diseases.

d. Agents employed in positions at such isolated places and requiring such knowledge of local conditions that they can not in the opinion of the Commission be filled by open competitive

28 September, 1912.

Excepted Positions (continued)

examination.

e. Agents employed intermittently for short periods outside of Washington, the aggregate length of whose service during any one calendar year shall not exceed six months, provided that employment under this provision shall not be for job work such as contemplated in section 4 of Rule VIII. The name of the employee, designation, rate of pay, and place of employment shall be shown in the periodical reports of changes; and in addition the aggregate individual service rendered and the distribution of such service during the year shall be shown in the report of changes at the end of each year or when the employee is separated from the service.

f. Student assistants whose salary shall not exceed a rate of \$300 a year each while employed.

Prior consent of the Commission must be obtained for the appointment of agents under clause (d) above; and in making appointments under clauses (a), (b), (c), (e), and (f), a full report shall be submitted immediately by the Department to the Commission setting forth the name, designation and compensation of the appointee, and a statement of the duties to which he is to be assigned, and of his qualifications for such duties, in such detail as to indicate clearly that the appointment is properly made under one of the above clauses. The same procedure shall be followed in the case of the assignment of any agent to duties of a different character.

The Civil Service Commission recommends this order.

Wm. H. TAFT.

The White House,
August 26, 1912.
(No. 1592)

"In order to properly carry out the Executive Order referred to, it will be necessary for the officer making the recommendation for the appointment of Agents to specify under what class of Subdivision IX of Schedule A (Agent 1a, 1b, etc.) the appointment is recommended. The Statement should also give the name, compensation, designation, qualifications for appointment, and duties of the position to which it is proposed to assign the appointee. The statement concerning qualifications and duties of position should be made in

28 September, 1912.

Excepted Positions (continued)

such detail as will enable the Civil Service Commission to determine whether the appointment is made under the proper class of Agents specified in Subdivision IX of Schedule A (Agent 1a, 1b, etc.). The necessary forms for compiling this information will be furnished by the Appointment Clerk. The statement referred to must accompany the recommendation for appointment, and no appointment will be made until such statement is received by the Appointment Clerk."

W. H. HAYS,
Acting Secretary.

JURAT FEES.

The following letter from the Acting Chief of Bureau, under date of September 21, 1912, is self-explanatory:

"Your letter of the 18th instant, inquiring whether your farm superintendents could be designated to administer oaths under Section 8 of the Sundry Civil Bill, as been received.

In reply thereto I inform you that the Acting Solicitor of the Department is of the opinion that farm superintendents would not be authorized to administer oaths under this provision. It is believed that you will be able to have the necessary oaths administered by postmasters or assistant postmasters without much inconvenience."

28 September, 1912.

FIELD NOTES.

Yuma.

The maximum temperature for the week ending September 14 was 103, minimum 52.

Alfalfa plats A1 to 9 are being plowed and will be re-leveled for spring plantings.

Roads 1 to 8 were plowed. Furrows for irrigating were run along the date and eucalyptus plantings.

The pruning on C8 to 17, fig plantings, was finished, the milo on D36 and 39 was harvested, and the winter garden put in on A12-2.

Mr. McLachlan visited the station two days while enroute to Phoenix.

Truckee-Carson.

During the week ending September 14 the maximum temperature was 84, minimum 35; greatest daily range 44.

A heavy application of gypsum was applied to Fields E7, 9 and 11, in connection with the drainage work to be carried on during the coming winter.

Prof. Brown, of the University of Nevada, visited the station during the week for the purpose of studying the occurrence of nematode diseases.

Mr. Luther P. Byars, of the office of Cotton and Truck Disease and Sugar Plant Investigations, also visited the station during the week for the purpose of studying the nematode situation.

Prof. L. J. Sharp, of the University of Nevada, soil chemist of that institution, visited the farm during the week.

Umatilla.

The maximum temperature during the week of September 7 was 74, minimum 40.

Mr. F. D. Farrell visited the station and spent two days.

The first of the large crop of fruit grown on one tomator vine is beginning to ripen. This plant is the only one of 1200 in a test to ward off the Western Tomato blight that survived. It has shown no symptoms

28 September, 1912.

FIELD NOTES.

Umatilla (continued).

of the blight until the present time, when it is going down very rapidly.

Mr. Allen returned Thursday from a trip to the Willamette Valley and Corvallis.

During the week of September 14 the maximum temperature was 87, minimum 41.

Some cooperative experiments with cover crops were arranged and the seed distributed in the vicinity of Stanfield, Ore., on a silt soil.

Some additional seedings of alfalfa and red clover were made on the Farm.

Huntley.

During the week of September 14 the maximum temperature was 84, minimum 38; precipitation, 0.98.

During the week alfalfa in fields A and B was mowed and ten acres on the Worden tract seeded to winter wheat.

Beet harvest on the Project was begun on the 12th.

Stormy weather during the week of September 21 made it impossible to do much field work.

The first frost of the season occurred during the week and did some damage to tender garden crops.

The third cutting of alfalfa mowed during the previous week was badly damaged by rain.

Winter wheat and rye on both the dry land and irrigation rotation fields are up and making a good start.

A recleaning of the seed from 12 plats of flax in the irrigated rotations shows an average yield of 18.5 bushels per acre and in the dry-land 8.08 bushels per acre.

Mr. Parker, Entomologist of the Montana State Station, visited the Farm during the week.

Scottsbluff.

During the week of September 14 all the dry land corn was out. Most of this corn had dried up from lack of moisture. Some of the dry land corn varieties was harvested, and this also had prematurely ripened.

28 September, 1912.

FIELD NOTES.

Scottsbluff (continued)

Seed corn was picked from the irrigated rotations. It was thought best to go through this corn and pick the ripe ears for the selection.

The construction of a potato cellar 14 x 40 ft. was begun.

Alfalfa was irrigated for the last time. The third cutting of hay was begun but had to be discontinued on account of rain.

The past week was one of the most disagreeable of the summer. With the exception of a day and a half, rain fell throughout the week and it was so cold that a fire in the office was necessary.

The disagreeable weather continued throughout the week of September 21, and a very heavy hail storm struck to the northwest of the farm and destroyed the third cutting of alfalfa and practically all of the corn in that neighborhood.

Cutting of the third crop of alfalfa was begun on the 13th and about half of it is down, the continued cold weather keeping it from curing.

All the farmers are reporting potatoes sprouting badly in the fields.

Nearly all of the potatoes in the irrigated rotations were dug during the week.

Mr. Blair Clark and Mr. Hamon, of Garden City, were at the Farm during the week, brining with them an equipment for testing sugar beets. To date over 100 tests have been made and it is hoped to finish the work during the coming week.

Mr. Townsend reports that he has finished his gin work at Sacaton and will take up the work of installing gins and machinery at other points.

Mr. Erret G. Smith, Farm Clerk, Yuma Experiment Farm, resigned from the service September 19.

28 September, 1912.

FIELD NOTES.

Delta.

The maximum temperature during the week of September 21 was 96, minimum 44.

Noticeable differences are showing in the percentage of wilt on the fertilizer plats on Field F. In general, all the green manured plats are less affected than the others, and on both the green manured and other lands, both phosphate and potash applications show less wilt than the untreated plats. The best showing, so far, is on the plats with a combination of green manure and an application of sulphuric acid in the irrigating water.

Plat F-IX-12, plowed 6 inches in March, green manured and treated twice with sulphuric at the rate of 200 lbs. per acre on the first application and 300 lbs. per acre on the second application, showed, on September 14, 670 plants, 81 wilted.

Plat F-VI-11, deep plowed in March, green manured, showed, on September 14, 679 plants, 96 wilted.

Plat F-VIII-12, deep plowed in March without green manure, showed, on the same date, 934 plants, 189 wilted.

Full counts will be run next week on all plats, as the wilt has apparently reached its maximum.

Mr. Irish accompanied Mr. Farrell to the Plant Introduction Garden at Chico and to the rice plantings at Biggs, returning Monday.

Dr. George W. Shaw, of the department of agriculture, University of California, visited the Farm Wednesday.

The price of potatoes, carload lots, still remains low, buyers offering but 60 and 70 cents per sack and 75 cents for fancy Burbanks, as against \$2.50 to \$3.75 per sack at the same time last year.

Belle Fourche.

Maximum temperature during the week of September 14, 73, minimum 34.

The weather was very stormy all week, with a high wind velocity every day except Thursday. On Saturday the wind averaged over 20 miles per hour for the 24 hours.

The men were employed in repairing irrigating ditches, laying tile, and general repair work.

5 October, 1912.

FIELD NOTES.

Yuma.

The maximum temperature for the week ending September 21 was 107, minimum 53.

The plowing on alfalfa plats A1 to 9 and roads 1 to 9 was completed.

Seed from No. 24451, Medicago ruthenica; No. 28646, M. tunetana, and hybrids No. 15, on A13-4 was gathered.

Fig plats C8 to 17 was disked; hoeing ditches, borders, roads, and grounds still in progress.

The question of growing sugar beets is being agitated among the farmers. The problem here is to grow a crop that resists alkali and matures before underground water appears in the early summer.

Mr. W. A. Peterson is visiting the Experiment Farms at Umatilla, Oregon, and Fallon, Nevada.

Mr. Townsend visited the station on the 15th.

Huntley.

During the week of September 28 the maximum temperature was 68, minimum 24; precipitation 0.81 inch.

The weather has been cold and stormy, making it impossible to do much outside work. The beet harvest has been considerably delayed and the third cutting of alfalfa badly damaged.

Plowing of oats stubble in Field C-III has been completed, and also plowing of plats in dry land rotation field.

Delta.

The maximum temperature during the week of September 28 was 87, minimum 40.5.

Work during the week consisted of pulling joint grass and tallying plants on Field F for percentage of stand and wilt.

Mr. W. A. Peterson spent Friday at the Farm.

5 October, 1912.

FIELD NOTES.

Scottsbluff.

The first three days of the week of September 28 four men helped Mr. Hamon, of the Department, test sugar beets. Two hundred and seven tests were made, the percentage of sugar running from 11.2 to 17.2, with an average of 13.8. The low sugar content of the beets is due to two fields of late beets which were reseeded last spring.

All of the third cutting of alfalfa is down, but the continued bad weather has prevented hauling.

Potato digging has been finished and corn cutting is about half completed.

Prof. Corbett, of the Department, visited the Station during the week, and a large number of potato fields were visited.

Belle Fourche.

The maximum temperature during the week of September 28 was 72, minimum 24; precipitation 1.25 in.

The plowing of oats on fields O and P has been started, and this, with the exception of plowing the flax plat on H-I-16, is practically all of the field work that it has been possible to do during the week, on account of bad weather.

The major part of the time of the men has been employed in building the drops in the main ditches in the irrigation rotation experiments.

The new sleeping room in the machine shed is practically completed.

Umatilla.

An acre each of sweet clover, red clover, and about one-half acre of alfalfa have been seeded in fields D3 and D4. The remainder of the yard has also been seeded to red clover and bluegrass.

Two light frosts have occurred, partly killing the melon vines; eggplant, and peanuts.

The maximum temperature during the week of September 31 was 86, minimum 32.

Mr. W. A. Peterson visited the Farm two days during the week.

5 October, 1912.

FIELD NOTES.

Truckee-Carson.

The maximum temperature during the week of September 21 was 90, minimum 32; greatest daily range 48.

Mr. Farrell and Mr. Headley made trips during the week to the Island, Stillwater, and Fernley districts, to inspect the cooperative experiments at these points.

On the 20th a frost was recorded which affected only lower portions of the Project.

A large display of fruits, vegetables, grasses, grains, etc., has been prepared by the Station for exhibition at the local county fair, which will be held during the coming week.

Prof. S. C. Dinsmore, Chemist of the University of Nevada, visited the Farm during the week.

San Antonio.

During the week of September 21 the maximum temperature was 99, minimum 62. The total precipitation for the week was 1.16 inches, which came in two showers, one on Monday and one on Saturday morning. The first norther of the season occurred on the 21st.

Plats A5-6 and B6-4 were subsoiled on Friday.

A rate of seeding test of sorghum in 8-inch drills on C4 was carried out this season, and the following yields were obtained:

Seed. Pounds Per acre.	Yield. Tons Per acre.
26	4.54
37	4.97
52	5.12
88	5.27
121	5.01
153	4.55
174	4.90

During the past year Mr. Blair has been paying special attention to the propagation of Japanese persimmon on the native persimmon (Diospyros texana) and he reports as follows regarding this work:

5 October, 1912.

FIELD NOTES.

San Antonio (continued)

During the past several months considerable attention has been given to the propagation of persimmons, making a special effort to utilize as a stock the native Texas persimmon (Diospyros texana), which is found growing so abundantly and persistently on the vast area of west Texas semi-arid lands and limestone canons. This tree has long been thought of as a probable stock for growing the Japanese persimmon, but it has been found nearly impossible to produce a union by any attempted means of propagation. Successful results have lately been accomplished by inarching where Diospyros texana seedlings have been grown and inarched while small enough to be handled in pots.

At the desired size for inarching, the seedling is transferred to a paper pot, as much of the soil being removed as possible without injuring the roots and replaced with sphagnum moss. It is necessary that the containers be made as light as possible, for under normal summer conditions our prevailing winds would prevent securely fastening a heavy pot to the branches of the scion tree in a position long enough unmoved to permit a union to be formed.

The sphagnum moss holds the moisture well around the roots of the plant, but must be moistened slightly every day. The stock and scion will commonly unite in about thirty days, but as the persimmon grows slowly the union cannot be injured by allowing more time.

Until this process was attempted, no successful Diospyros kaki plants had been produced on D. texana stock. A few crown grafts were made to start, but no others. Budding has been repeatedly attempted by shield, patch, flue, and ring bud methods, with no success whatever.

A small planting of various varieties of Japanese persimmons growing on the native stock is to be made under dry land conditions as soon as the trees can be propagated. Several have already been set to orchard positions. As most species of the Japanese persimmon suffer from chlorosis on our soils, it is believed that ~~the use of this resistant stock~~

5 October, 1912.

FIELD NOTES.

San Antonio (continued).

may be a solution of this trouble, unless the scion proves to rapidly outgrow the stock.

The following combinations of unions have been successfully accomplished here by the inarch method, showing that the union of D. texana and other species is possible:

<u>D. kaki</u>	on <u>D. texana</u>	stock
<u>D. virginiana</u>	" <u>D. texana</u>	"
<u>D. texana</u>	" <u>D. kaki</u>	"
<u>D. texana</u>	" <u>D. virginiana</u>	"

Mr. A. H. Hawley severed his connection with the Department on September 30, and the work at Williston, so far as this office is concerned, has been discontinued.

Mr. Hansen has advised this office that Mr. A. G. Schattenberg has left the service in order to enter the Agricultural College at Bozeman, Mont.

He also advises that Mr. J. M. Spain has announced his intention of resigning from the service. Mr. Spain's plans for the future are not known.

12 October, 1912.

FIELD NOTES.

Belle Fourche.

Maximum temperature during the week of October 5 was 85, minimum 32; precipitation, 0.20 in.

The oats on fields O and P have been threshed, the total yield being 1314 bushels, or a yield of 72 bushels per acre.

During the week Mr. Dillman's millets have been threshed, the winter wheat in the irrigation rotations seeded, the corn on the dry land rotation plats, and on all excepting three plats in the irrigated rotations harvested and shocked, and the plowing of fields O and P nearly completed.

San Antonio.

The maximum temperature for the week ending September 28 was 99, minimum 54.5; greatest daily range 30.5.

On Monday the fallow plats and orchards were harrowed or cultivated. Plat A6-13 was subsoiled on Thursday.

Buds were secured from a native pecan tree of exceptional quality, found growing on the San Antonio River, and worked on seedling pecan stock in nursery on A5.

Two hundred plants of various species of yuccas and aguaves were transplanted from the greenhouse to fence rows on the farm.

Messrs. Cook, Brand, Kinsler, Marshall, Rand, and Meade were at the station during the week.

The final picking of irrigated cotton was made during the early part of the week. The best plat yielded at the rate of 1400 pounds of seed cotton per acre, the lint being of good quality.

12 October, 1912.

FIELD NOTES.

Truckee-Carson.

The Truckee-Carson Fair was held at Fallon on September 26, 27, and 28. The exhibit from the Experiment Farm attracted considerable attention. It included named varieties of the field and garden crops grown this year, together with fruits gathered from the various orchards of the Project. Probably the most valuable part of the Experiment Farm exhibit was the collection of stock beets, mangels, stock carrots, and sugar beets that had been grown on adobe soil too alkaline for the growth of alfalfa and grain.

The University of Nevada sent down a Pure Food exhibit that attracted more attention than any other one thing at the fair. Demonstration lectures were given by Professors Dinsmore and Ross in connection with this exhibit.

Exhibitors were encouraged to attach the names of the varieties to their products, so as to make this fair as educational as possible.

Prof. Howes of the University of Nevada was a visitor.

About three hundred rotted cuttings of rhizomatic alfalfa were received from Mr. E. W. Oliver of the Experimental Gardens and Grounds.

Maximum temperature during the week of September 28 was 88, minimum 29.

Yuma.

The maximum temperature for the week ending September 28 was 100, minimum 51.

Egyptian cotton picking began on the 23rd, on plat B26-26, successive plantings of Yuma variety. The first picking yielded 560 pounds. As compared with 1911, picking is 15 days late. A small amount for samples was ginned from this picking.

Prof. Thornber, of the University of Arizona, visited the station on September 23.

12 October, 1912.

FIELD NOTES.

Umatilla.

The maximum temperature during the week of September 28 was 80, minimum 32.

Mr. Allen left during the week to attend the National Irrigation Congress at Salt Lake.

A registered Jersey bull was received at the farm from the Oregon Agricultural College. The object in stationing the bull at the station is to improve the dairy herds and thus build up the dairy industry, with the ultimate object of building up the soil.

Scottsbluff.

Monday and Tuesday threshing of the small grain was finished, Monday, the 30th, being the first day in four weeks that grain was dry enough to shock thresh.

The alfalfa hay was raked Tuesday, and although some of it had been down for three weeks it was too green to haul.

On Wednesday the sugar beet harvest was begun. A good deal of difficulty is experienced in securing anyone to do the hauling. There is a good deal of complain from the sugar factory of beets testing too low. This is especially true of the crop grown on the bottom land.

Hauling hay has been commenced, but this work is progressing slowly because of lack of teams; the four heavy horses being engaged in hauling beets.

Dr. Wilcox and Prof. Emerson, of the State Experiment Station, visited the Farm October 4.

PERSONAL.

Mr. Scofield left Thursday for a short trip to Philadelphia, Newark, New York, and New England points, for the purpose of interesting spinners and buyers in the crop of Egyptian cotton now maturing in the Southwest.

COMPARATIVE WEATHER RECORDS FOR SEPTEMBER.

	Belle Fourche.	San Antonio.	Truckee- Carson.
Maximum temperature	94.00	101.00	90.00
Minimum "	24.00	54.5	29.00
Mean "	52.40	81.9	58.30
Av. wind velocity	7.55	5.74	5.43
Rainfall	5.49	1.53	.43
Days clear		12	22
Days partly cloudy		14	5
Day cloudy		4	5

REQUISITIONS.

For some time new forms have been in use in requesting and issuing requisitions, submitting vouchers for services or supplies furnished, thereon, etc. In connection with this change there is now issued to the dealers an invoice sheet, which is a Departmental form, and which is to be filled out and sent in to the Department.

If, in the case of requisitions for supplies to be delivered direct to field stations, the dealers should send the invoice with the supplies or otherwise forward it to the station, it should be sent in to this office without being signed, initialed, or in any way marked or approved at the station. The notification of the receipt of the goods ordered should be sent in to the Washington office in the usual manner.

12 October, 1912.

BILLS OF LADING.

Mr. Headley has requested this office to run off for him on the duplicating machine two forms for use in transmitting government bills of lading to dealers and giving instructions in regard to the handling of these papers. These forms are as follows, and if any of the other farms desire a supply, they will be run off and sent upon request:

INSTRUCTIONS FOR HANDLING GOVERNMENT BILLS OF LADING.

....., 191 .

.....

.....

Sir:

Ship goods on the enclosed Government Bill of Lading No.

DO NOT PAY FREIGHT CHARGES.

Kindly complete this Bill of Lading by filling in the date of shipment and the body of the

Original Bill of Lading, Memorandum Bill of Lading, and Shipping Order.

Sign the Consignor's Certificate of Shipment on the Original Bill of Lading; also sign the Shipping Order.

Have the agent of the Railroad Company at sign the Original Bill of Lading and the Memorandum Bill of Lading.

The Railroad Company's agent at your station retains possession of the shipping order; the original bill of lading and the memorandum bill of lading are to be returned to

Very respectfully,

Sir:

I enclose herewith Government Bill of Lading No. covering shipment of from to

Kindly fill in and sign the Consignee's Certificate of Delivery on the Bill of Lading and surrender to the Railroad Company delivering shipment to you.

DO NOT PAY FREIGHT CHARGES.

Very respectfully.

19 October, 1912.

FIELD NOTES.

Delta.

During the week of October 5 the maximum temperature was 87, minimum 42.

Work during the week consisted of pulling joint grass and tallying potato plants for stand and wilt. The count of plants will be completed and included in the next report.

Huntley.

During the first four days of the week of October 5 the weather was favorable to field work.

Alfalfa from fields A, B, and CI was hauled in and stacked, and the alfalfa in fields K and D was mowed. A heavy rain Friday and snow Saturday stopped all outside work.

The beet harvest throughout the Valley has been stopped by the wet weather and the factory has had to close down until more beets can be delivered.

Belle Fourche.

The maximum temperature during the week of October 12 was 67, minimum 27; precipitation 0.02 inch.

The plowing of the oats on fields O and P has been completed; the sorghos on fields C and G have been cut and hauled in; the corn varieties on field F-I have been put in shock; and the remainder of Mr. Salmon's grain varieties have been threshed, as well as the remaining plat of flax on A-III.

On Saturday a representative of the Du Pont Powder Company called at the station to give a demonstration of blasting this soil for field crops. A vacant plat on field B was selected for this purpose and enough blastings were made to cover the entire plat.

19 October, 1912.

FIELD NOTES.

Scottsbluff.

The first three days of the week of October 12 were devoted to putting up the third crop of alfalfa. Rain again interfered and about three acres of hay was wet.

Wednesday afternoon and Thursday 0.93 inch of rain fell, and the time was devoted to sorting potatoes, making potato bins, etc.

Friday and Saturday the weather permitted continuation of the work on the sugar beets. The labor situation regarding beet work has not changed any. A number of men have been shipped in, but not nearly enough to take care of the crop. Teams for hauling beets are as scarce as the men required for the hand labor.

The potato market has improved during the past two weeks; several cars having been shipped at 45 and 50 cents per hundred.

Messrs. Zook and Burr are harvesting the corn that was planted for their office this year.

Truckee-Carson.

The maximum temperature during the week of October 5 was 85, minimum 33; precipitation 1.00 inch.

During the week Mr. Headley visited a number of the sugar beet fields, and found uniformly good crops. The beets are unusually large and the average percentage of sugar is running at about 17. In some cases the fields will go close to 30 tons per acre.

The third cutting of alfalfa hay was begun, but was interfered with by the rains which occurred during the week.

Bids have been submitted to electrical supply companies for the furnishing of supplies for an electrical transmission line to be connected with the motor and pump recently purchased for the drainage work to be conducted during the coming season.

19 October, 1912.

PUBLICATIONS.

According to our present understanding of orders issued to date under the new law placing the distribution of government publications in the hands of the Superintendent of Documents, the method of requesting publications for the field stations will not be in any way affected. They should address requests for publications to the Chief of the Division of Publications of this Department, as heretofore.

ACCOUNTS.

For some reason, it has been decided that the Office of Records of the Bureau of Plant Industry will not, during the current fiscal year, issue monthly statements of the various Bureau accounts, as has been customary up to July 1, 1912. It has been from these statements that this office has secured the items for freight, express, telegraph, stock requisitions, telephone service in Washington, over-estimated and under-estimated liabilities, etc. Without these items it is impossible for this office to keep full and accurate accounts or make complete and accurate statements of accounts. An attempt is being made to devise some method of overcoming this difficulty, and up to date accounts in the division have been kept as usual with such data as have been available. As soon as a decision is reached as to the method to be used for the remainder of the fiscal year, statements to cover the various accounts will be drawn up and mailed.

-cOc-

Mr. Scofield expects to leave Washington October 23 for a trip to the Southwest in the interest of Egyptian cotton extension work. His itinerary will include Phoenix, Sacaton, Yuma, Los Angeles, San Antonio, and St. Louis.

19 October, 1912.

PLAT VARIATION TESTS AT HUNTLEY.

In the Progress Report of December 31, 1911, mention was made of the plat variation tests conducted on fields B-II and B-III at Huntley in 1911. Last year these two series, containing 46 plats, each 23-1/3 x 317 feet, were planted to sugar beets and given uniform treatment. This year the plats were planted to alfalfa and treated uniformly. The first crop of alfalfa was harvested September 10. In the following table the results obtained with sugar beets in 1911 and with alfalfa in 1912 are summarized.

	Beets 1911.	Alfalfa 1912.
Mean yield per acre, 46 plats.....	24600 lbs.	2097 lbs.
Mean deviation from mean yield.....	2829 "	262 "
Maximum " " " "	8364 "	597 "
Minimum " " " "	280 "	20 "
Number of plats exceeding mean yield	19	23
Number of plats yielding less than the mean.....	27	25
Mean deviation in % of mean yield...	11.5%	12.5%
Maximum " " " " " "	34.0%	28.0%
Minimum " " " " " "	0.1%	1.0%

This year 34 plats, or 74 per cent of the total number, produced yields which deviated from the mean yield in the opposite direction from their 1911 deviation. Nineteen of these plats yielded in excess of the mean yield this year and below it in 1911, the remaining 15 plats yielding below the mean this year and above the mean in 1911. The extent of the reversal in deviation was rather high. It was determined in each case by adding the percentage of deviation in 1911 to that of 1912. For example: Plat B-II-1, which yielded 27 per cent below the mean yield in 1912 and 17 per cent above the mean yield in 1911, is considered as having a reversal percentage of 44. The reversal percentage of 3 plats was below 10; of ten plats, between 11 and 20; of eleven plats, between 21 and 30; of six plats, between 31 and 40; and of four plats, between 41 and 49. The mean reversal percentage of the 34 plats was 25.

19 October, 1912.

Plat Variation Tests at Huntley (continued).

An interesting comparison can be made between the plat variation on fields B-II and B-III, where alfalfa followed beets, and that on field A-I (plats 7 to 16, inclusive), where alfalfa followed miscellaneous crops. It will be noted from the following table that the deviation was relatively less where the alfalfa followed miscellaneous crops than where it followed a single crop. It should be observed, however, that only 10 plats are involved in the consideration of field A-I.

		Alfalfa, 1912.	
		Fields	Field
		B-II & B-III.	A-I.
Number of plats.....		46	10
Mean yield per acre.....		3097 lbs.	2287 lbs.
Mean deviation from mean yield.....		262 "	221 "
Maximum " " " "		597 "	635 "
Minimum " " " "		20 "	7 "
Mean deviation in % of mean yield...		12.5%	9.6%
Maximum " " " " ...		28.0%	28.0%
Minimum " " " " ...		1.0%	0.3%

F.D.F.

19 October, 1912.

FIELD NOTES.

Huntley.

During the week of October 12 the maximum temperature was 62, minimum 28; precipitation 0.67 in.

No field work could be done during the fore part of the week, because of stormy weather.

Beet harvest in field B-VII was commenced Saturday. As a result of the heavy rains recently, this work is rather difficult, especially on the heavier soils. The dirt tare on beets is ranging from 20 to 40 per cent.

All winter wheat is up in good condition and making good growth.

San Antonio.

The maximum temperature for the week ending October 5 was 94, minimum 57; greatest daily range, 54; precipitation, 0.30 inch.

A trip to the Medina dam and surrounding country was made on the 4th by Messrs. Hastings, Blain, and Latteer.

On September 30 Messrs. Blair and Hastings made a trip to New Braunfels for the purpose of securing fruits of the marked Aesculus trees. Owing to the drought practically no fruit had set.

A trip was also made to the country near Elmen-dorf, Texas, to secure budwood of several hybrid wild plums growing in that section. These buds were worked on stock in nurseries C8 and A3.

During the week a 50-ft. machinery shed was constructed.

During the week of October 12 the maximum temperature was 94, minimum 59; greatest daily range 29; precipitation, 0.15 inch.

The cotton stalks on the rotation plats were cut and raked for burning.

A shipment of violets (varieties California and Princess of Wales) has been received and planted to grounds and on benches in the old greenhouse.

Prof. Alexis E. Lubchenco, of Moscow, Russia, spent two days at the farm, studying the soils and cotton varieties.

Mr. F. D. Farrell was at the farm from the 7th to the 10th.

19 October, 1912.

PERSONAL.

Mr. Farrell returned to Washington October 13 after an extended trip in the West.

Mr. Knorr will deliver an address on the preparation of soil and care of crops before the annual meeting of the Nebraska State Irrigation Congress, to be held at Bridgeport October 22, 23, and 24.

THE DRAFT OF PLOWS.

Considerable interest has recently been manifested by the field men in connection with the differences in the quantity of power required to operate plows of various types, to plow different kinds of soil, to plow a soil under varying moisture conditions, and to plow at different depths or with different widths of furrow. Arrangements are now being made to conduct some dynamometer tests at the Belle Fourche and Scottsbluff Experiment Farms for the purpose of determining as nearly as possible the draft of plows under various conditions at the two farms. In this connection, and as a matter of general information, the two tables following, taken from an article in "The Threshermen's Review (St. Joseph, Mich.) for August, 1906, will be of interest.

Table I presents figures representing the draft in pounds necessary to draw a plow through soil of a medium clay type, in stubble, and in good moisture condition, at the depths and widths of furrow as indicated. The figures given are averages, and were compiled from all the English and American data available. They are supposed to apply to the best types of plows in use up to 1906.

Table I.— Draft, in pounds, necessary to draw a plow through medium clay, stubble soil in good moisture condition, with different widths and depths of furrow.

Width of Furrow — inches.	Depth of Furrow — inches.								
	4	5	6	7	8	9	10	11	12
9	176	205	233	261	289	317	345	374	402
10	203	235	266	296	329	360	392	423	451
11	230	265	299	332	369	403	438	473	507
12	257	295	332	367	408	446	484	522	560
13	283	325	366	402	448	489	530	571	613
14	310	355	399	438	488	532	577	621	665
15	337	385	432	473	527	575	625	670	718
16	364	415	465	509	567	618	669	720	771
17	391	445	499	544	607	661	715	769	823
18	417	475	532	579	647	704	761	819	876

The Draft of Plows (continued)

It is a common practice on our experiment farms to plow a furrow about 14 inches wide and 7 inches deep. From the table it is seen that to plow such a furrow, under the conditions above described, would require a steady draft of 458 pounds. If the plow is moved at the rate of 2.5 miles per hour, this draft represents 3.98 horse power.

Table II is compiled from Table I, and represents the same information, but on the basis of horse power required, it being assumed that the plow is pulled at the rate of 2.5 miles per hour.

Table II.— Horse power required to draw a plow through medium clay, stubble soil in good moisture condition, at the rate of 2.5 miles per hour, with different widths and depths of furrow.

Width of Furrow — inches.	Depth of Furrow — inches.								
	4	5	6	7	8	9	10	11	12
9	1.18	1.36	1.55	1.74	1.93	2.12	2.30	2.49	2.68
10	1.35	1.56	1.78	1.96	2.19	2.40	2.61	2.82	3.03
11	1.53	1.76	1.99	2.21	2.46	2.69	2.92	3.15	3.38
12	1.71	1.96	2.22	2.45	2.72	2.97	3.23	3.48	3.73
13	1.89	2.17	2.44	2.68	2.99	3.26	3.53	3.81	4.08
14	2.07	2.36	2.66	2.92	3.25	3.55	3.84	4.14	4.43
15	2.25	2.56	2.88	3.15	3.52	3.83	4.15	4.47	4.79
16	2.42	2.76	3.10	3.39	3.78	4.12	4.46	4.80	5.14
17	2.60	2.95	3.33	3.63	4.04	4.41	4.77	5.13	5.49
18	2.78	3.16	3.55	3.86	4.31	4.69	5.08	5.46	5.84

For purposes of comparison, it may be noted that a pull of 438 pounds (the draft of a plow making a furrow 14 inches wide and 7 inches deep) is sufficient to draw a load of two tons in a wagon weighing 1800 pounds over a level earth road in good condition.

The article from which the above tables are taken calls attention to the fact that there is a wide variation in the draft of plows working in sod and in dry soil, and states that the draft required to make a 14 x 7 inch furrow in second-year clover sod in good moisture condition was 440 pounds, while on the same soil after it had become dry a pull of 1058 pounds was required.

26 October, 1912.

The Draft of Plows (continued)

These figures apply to a breaking plow. A stubble plow used side by side with the breaking plow in the same soil when it was in good moisture condition required a draft of 527 pounds as compared with 440 pounds required by the breaking plow.

FIELD NOTES.

Truckee-Carson.

During the week ending October 12 the maximum temperature was 66, minimum 25.

Of the five varieties of potatoes tried with fertilizers, the average yield of check rows was 63 pounds; of fertilized rows, 62 pounds. The soil was distinctly sandy and was manured with a medium dressing of stable manure. On 0.337 acre 8914 pounds were raised, or about 148 bushels per acre. Early Ohio stock, which has been the best yielding variety at the Experiment Farm for four years, yielded the poorest, or 115.74 bushels. White Beauties, 194 bushels per acre, was the best. It was evident that the late varieties in particular, such as White Beauties, would have done better with more water at the driest part of the season.

The only successful melons this year were planted on heavy soil May 7. A 144-foot row each of Hackensack muskmelon and Coles Early watermelon yielded 353 pounds and 311 pounds, respectively, or 240 pounds and 216 pounds per 100 feet of row. The remainder of the melons were planted May 14 on soil exposed to sand movement, with unsatisfactory results. The sand storms so retarded their growth that the crop was too late for profit. Mel. Fordhook muskmelon was considerably earlier than Rocky Ford and is a very promising shipping variety.

The four varieties of pumpkins — Connecticut Field, Mammoth King, Small Sugar, and Cushaw Crookneck — in F-7 yielded well, except Cushaw Crookneck.

George Burton has about 3 acres of onions on a rich, heavy, river loam. The varieties are Wethersfield, Gigantic Gibraltar, Yellow Globe Danvers, and Flat Danvers.

FIELD NOTES.

Truckee-Carson (continued)

The Danvers onions were much the best. The Gibraltares were a failure of badly mixed stock and immature. Wethersfield was good quality, but not as yeavy yielder as the Danvers. Most of the land was manured at the rate of about 15 tons per acre. Six hundred sixty-six feet of rows of the Wethersfield on unmanured land yielded two sacks of approximately 80 pounds each, while the same length of rows taken at random in the manured area on apparently the same soil yielded eleven sacks. In the unmanured soil at least two-thirds were scallions, while but few scallions occurred where manure was used.

A fertilizer test with sugar beets was conducted on the Experiment Farm the past crop season on a greyish colored clay soil, containing black alkali and very deficient in humus. The clay was impervious to water, and during the hot months a hard surface crust would form after each irrigation. The beets were drilled in rows 80 feet long and 18 inches apart, and irrigated by the furrow method. Two rows were used for each fertilizer or combination of fertilizers, which were separated by four check rows. In harvesting, the first and fourth check rows were discarded, while the second and third were recorded. The following is the order in which the plat was planted, showing the pounds per acre of each fertilizer and the weight and number of beets harvested in each test:

Fertilizer and Check.	Pounds of Fertilizer per acre.	Number of Beets.	Pounds of Beets.
Sodium nitrate.....	180	219	65
Check.....		101	27
Acid fosfate.....	200	160	46
Check.....		109	67
Potassium sulfate.....	200	196	65
Check.....		207	72
Potassium chlorid.....	160	205	86
Check.....		214	89
Gypsum.....	400	290	102
Check.....		236	94
Sodium nitrate and acid fosfate..	440	254	95
Check.....		109	60
Sodium nitrate & potassium sulfate	390	124	75
Check.....		97	46
Acid fosfate & potassium sulf. te.	290	129	63
Check.....		100	46
Complete fertilizer.....	540	277	114
Check.....		238	54
Gypsum and complete fertilizer...	750	254	86
Check.....		235	56

26 October, 1913.

FIELD NOTES.

Belle Fourche.

During the week of October 19 the maximum temperature was 74, minimum 26.

Miscellaneous field operations included plowing field F-IV, spring tooting field D, harrowing all of the vacant plats on fields A and H, and partially completing the plowing of field K.

The potatoes in the irrigated and dry-land rotation plats have been dug and placed in the cellar. The garden crops have also been gathered and stored in the cellar.

The harvesting of sugar beets was commenced on Friday.

San Antonio.

The maximum temperature for the week of October 19 was 87, minimum 56. This section of Texas was visited by good rains during the week, the total precipitation amounting to 2.74 inches.

A number of Persian walnut buds were worked on the native black walnut (Juglans nigra) growing in Mr. Collins' irrigated nursery. Five hundred rose cuttings of various varieties were made and put in the sand in greenhouse benches for rooting.

The rain occurring on the 16th and 17th prevented field work for the greater part of the week. The latter part of the week was devoted to repairs on the buildings.

Messrs. Blair and Letteer were in Dallas on the 16th and 17th.

Huntley.

The maximum temperature for the week of October 19 was 75, minimum 27.

Weather conditions have been favorable to field work. Hauling alfalfa from fields C, D, and K was completed. Some of this hay had been cut since the 15th September and was badly damaged by the rains.

The remainder of the time was spent in harvesting beets in field B, and plowing alfalfa plats in irrigated rotation field.

Mr. Parker, of the Montana State Station, visited the farm.

26 October, 1912.

FIELD NOTES.

Delta.

The maximum temperature during the week of October 12 was 80.5, minimum 33.

High wind on the 8th blew down the hills and exposed a great many tubers to the weather. The slight frost on the morning of the 11th nipped a great many of the plants, but more especially the volunteer plants outside of the plats.

Prof. W. R. Mawhorter, of the Stockton High School Agricultural Department, recently appointed from the University of Wisconsin, was a visitor on Saturday, bringing with him one of his pupils.

During the week of October 19 the maximum temperature was 85, minimum 36.

Prof. L. C. Corbett and Mr. W. A. Orton, of the Department, spent Monday at the farm. Mr. J. F. Breazeale, of the Bureau of Chemistry, spent Friday at the Farm.

Price of potatoes still remains very low, 50¢ per cwt.

Pink beans are being harvested in the neighborhood. The acreage this year is light, but the yield surpasses all previous seasons, on one farm running 30 sacks to the acre. The price this year is good, now bringing \$5.90 per cwt. for machine threshed and \$4.12½ for recleaned.

Umatilla.

The maximum temperature during the week of October 12 was 72, minimum 24.

Mr. Allen left during the week for John Day, Ore., to attend the Grant County Fair. Before returning he will do some work on the adaptability of the various varieties of apples in the Grand Ronde and Milton fruit districts.

The variety test of potatoes was harvested during the week. Early Ohio produced the largest number of potatoes, 68 pounds, 90.5 per cent of which were marketable, in a row of 150 feet. Irish Cobbler was next, producing 65 pounds, 93.5 per cent of which were marketable size. As has been found years heretofore, locally grown seed does not produce good crops. The few plants which do grow produce only a few tubers.

The work of seeding the orchard and other places exposed to the wind to rye to prevent blowing during

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36 October, 1912.

FIELD NOTES.

Unatilla (continued)

the winter months was completed.

The maximum temperature during the week of October 19 was 78, minimum 29.

The peanut crop was harvested and placed around poles for drying. The crop promises to be only fair.

Mr. Farmer, of the office of Irrigation Investigations, visited the farm on Thursday.

High winds occurred Thursday and Saturday and caused considerable movement of sand.

Scottsbluff.

The week of October 19 was devoted to the beet harvest. Beets on an average are turning out fairly well, ranging from 16 to 22.5 tons per acre.

The wet weather which continued until the previous week made third crop haying and threshing drag over on the beet harvesting and made it almost impossible for the beet people to get help of any kind. Mr. Holden reports that it is stated that the beet men (Japs and Russians) in order to take advantage of the fine weather have traded their beds for lanterns.

The corn on rotation 65, field K, has been hogged, producing a gain of 167 pounds. At the price at which hogs are now selling, this would give a return of \$51.77 per acre.

Potatoes from the irrigation rotations have been harvested. The yield, "field run", per acre was: Highest plat 268.2 bu.; average for thirteen plats 227.7 bu.; lowest plat, 171.8 bu.

Mr. Zook was at the station for about a week harvesting his corn varieties. Before leaving he drove over the Project and gathered some seed corn from the best fields for future work.

Maximum temperature 77; minimum 26.

Mr. Scofield left Washington Tuesday for a short trip to the Southwest.

2 November, 1913.

ALFALFA SEEDING TEST AT HUNTLEY.

A summary of the yields obtained at Huntley in the alfalfa seeding test, started in 1911, on Field A-IV, is given below:

Method and Date of Seeding	Yield per acre — tons.		
	1911. Two Cuttings	1912. Three Cuttings	Total Two Years
3 plats planted May 5, 1911 (early).....	2.43	5.64	8.07
3 plats planted June 5, 1911 (late).....	2.00	5.35	7.35
3 plats planted June 5, 1911, in 18" rows.....	1.75	4.98	6.73
2 plats planted May 5, 1911, with wheat as nurse crop; cut for hay, 1911.....	(2.34)	5.40	5.40 ^a
2 plats planted May 5, 1911, with wheat as nurse crop; cut for wheat, 1911.....	(46.7bu)	4.93	4.93 ^b
4 plats planted May 5, 1911, with wheat as nurse crop, 1912 average.....		5.17	

^a Plus 2.34 tons wheat hay.

^b Plus 46.7 bushels wheat.

The yields of alfalfa produced by the various methods during the two years are arranged in descending order in the last column. In comparing the different methods, consideration must be given to the production of wheat and

3 November, 1912.

Alfalfa Seeding Test at Huntley (continued)

of wheat hay on the nurse crop plats. It will be noted that the differences in the alfalfa yields in 1912 are comparatively slight, and that the order of yields is not the same as it is when the two years' results are involved. The yields of the first cutting in 1912 were in the same order as those obtained in 1911, with the early planting, late planting, and row planting methods; but considering all three of the 1912 cuttings there is noted a rather decided tendency for the yields to converge in all four methods. This is shown by the maximum spread in the average yields obtained with the different methods. The maximum spread in the first cutting was 840 pounds per acre; in the second, 420 pounds per acre, and in the third 400 pounds per acre. The yield of each of the three cuttings in 1912 was less on the plats where the nurse crop was cut for wheat in 1911 than on those where it was cut for hay, the average difference in favor of the latter being 940 pounds per acre in the total 1912 yield.

A series of tests duplicating the above was started this year on Field A-III. It will be noted that all four nurse crop plats were cut for wheat. A summary of the yields obtained is given below:

Method and Date of Seeding.	Yield per acre, 1912.		
	First Cutting	Second Cutting	Total.
	Tons.	Tons.	Tons.
3 plats planted May 11, 1912 (early).....	1.46	0.70	2.16
3 plats planted June 14, 1912 (late).....	0.53	- - -	0.53
3 plats planted June 14, 1912, in 18" rows.....	0.24	- - -	0.24
4 plats planted May 11, 1912, with wheat as nurse crop; cut for wheat, average..			44.2 bus.

2 November, 1912.

Alfalfa Seeding Test at Huntley (continued)

The yields of the nine plates from which alfalfa was harvested are considerably lower than those produced in the corresponding plates in 1911 on Field A-IV, and the difference between the early planting and the two other methods is greater; but the order of yields remains the same as it was in 1911.

FIELD NOTES.

Truckee-Carson.

The maximum temperature during the week of October 19 was 76, minimum 28.

The comparative yields of the variety test of alfalfa in Field F-15 of the three cuttings made this season are as follows:

Variety.	1st Crop.	2nd Crop.	3rd Crop.	Total.	Length of row (feet)
Caucasus	230	135	38	403	320
M. ruthenica	---	---	--	---	322
Arabian	80	95	82	257	324
Peruvian	140	140	91	371	325.5
Grimm	215	155	57	427	326.5
Sand lucerne	115	115	43	273	327
Turkestan	185	120	49	354	328
Montana	185	120	69	374	330.5
Canadian	195	135	59	389	333
Western Grown	175	145	70	390	334.5
Provence	150	120	53	323	335
Elohe	85	120	62	267	336
Totals,-	1755	1400	673	3828	

Messrs. L. C. Corbett and W. A. Orton visited the station during the week.

Prof. Brown made his headquarters at the station

THE HISTORY OF THE

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CHAPTER I

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2 November, 1912.

FIELD NOTES.

Truckee-Carson (continued)

while studying the occurrence of the eelworm in the potato crop this season.

The result of the cooperative fertilizer test with potatoes on the ranch of Dr. T. F. Richardson is as follows:

Row	Fertilizer.	Yield. Pounds.	Remarks.
1	Check.....		Most of row missing.
2	Check.....	104	Large potatoes on side of levee.
3	Acid fosfate.....	135	Other side of levee row 2; soil deep and loose.
4	Rock fosfate.....	130	
5	Potassium chlorid...	139	
6	Potassium sulfate...	120	
7	Check.....	128	
8	Check.....	111	
9	Sodium nitrate.....	134	
10	Ammonium sulfate....	105	
11	Gypsum.....	120	
12	Check.....	100	
13	Check.....	135	
14	Acid fosfate and Potassium sulfate..	55	Most of row missing.
15	Sodium nitrate and Acid fosfate.....	130	Partly on levee.
16	Sodium nitrate and Potassium sulfate..	109	
17	Complete fertilizer.	143	
18	Complete fertilizer and Gypsum.....	147	
19	Complete fertilizer and Gypsum.....	115	
20	Complete fertilizer, gypsum and manure..	118	
21	Manure.....	79	
22	Check.....	93	

THE UNIVERSITY OF CHICAGO

DEPARTMENT OF CHEMISTRY

REPORT OF THE CHAIRMAN OF THE COMMITTEE ON THE STUDY OF THE

PROGRESS OF THE DEPARTMENT OF CHEMISTRY

FOR THE YEAR 1960-1961

PRESENTED TO THE BOARD OF TRUSTEES

AT THE MEETING OF THE BOARD OF TRUSTEES

HELD ON THE TWENTY-NINTH DAY OF MAY, 1961

IN THE CHICAGO, ILLINOIS

THE DEPARTMENT OF CHEMISTRY has been fortunate in having a very able and energetic Chairman, Professor [Name], who has been in the department since 1955. Under his leadership, the department has made significant progress in many areas of research, particularly in the fields of organic chemistry, physical chemistry, and biochemistry. The department has also been successful in attracting and retaining a high caliber of faculty and students, and in maintaining a strong reputation for its research and teaching. The following is a summary of the department's activities during the year 1960-1961.

2 November, 1912.

FIELD NOTES.

San Antonio.

The maximum temperature for the week ending Oct. 26 was 84.5, minimum 51.

Plats B6-8 and B6-10 in the rotation fields were manured. Plats A5-9, 12, and 16 and B5-8 were plowed preparatory to seeding oats. Cotton stalks on C3 and D3 were cut and raked.

More Persian walnut buds were worked on native black walnut stock (Juglans nigra) at Mr. Collins' on Saturday, Mr. Schattenberg assisting Mr. Blair in the work.

Messrs. Clark, Marshall, and Taylor spent the greater part of the week at the farm, harvesting cotton and otherwise completing their cotton work for the season. Mr. Clark returned to Waco on Wednesday and Mr. Marshall left for Jackson, Tenn. on Friday.

Belle Fourche.

Maximum temperature for the week of October 26, 70, minimum 22.

Field operations for the week have included plowing field K, disking and leveling fields I and K, and plowing plats 2 and 9 on H-I, and 9, 15, and 25 on field A-III.

All of the corn in the irrigated rotations has been husked, and about half of the variety rows of corn on field F-I. Hardly any of the corn varieties matured, on account of the cold and damp weather during September.

The sugar beets in the irrigated rotations have been harvested, yielding from 4 to 11 tons to the acre. The beets on the Experiment Farm were hauled to the ground on September 9. A sample of these beets was sent to the Fort Collins factory of the Great Western Sugar Company, together with a sample of beets that were not hauled upon, and the analyses showed a percentage of sugar of 10.5, with 73.95 per cent purity, for the beets hauled to the ground, and a percentage of sugar of 13.8, with a purity of 78.15 for those not hauled upon.

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9 November, 1912.

TRAVEL.

A number of inquiries have been received as to the proper method of entering upon travel vouchers the claim for the per diem allowance given in lieu of reimbursement for expenses for subsistence.

It should be borne in mind that the per diem allowance for anyone may vary considerably from time to time, depending upon whether one is traveling in the State wherein is situated one's temporary or permanent station, and whether one visits one or more of the cities wherein the per diem allowance is increased one dollar. When travel begins and ends on the same day, an itemized account must be submitted. Otherwise, for a fraction of a day, one-half of the regular per diem allowance is given. For these reasons and others, the voucher should indicate the date and hour of arriving at and departing from each point, and should show also (as is required), for each consecutive period for which allowance is claimed and also for each period for which an increased rate is claimed, the first and last items of expense for meals and lodging — not the amount of the items, but only whether they are for breakfast, dinner, supper, or lodging.

The item for the per diem allowance should be the last. A claim for allowance for the period from dinner, November 4, to breakfast, November 9, inclusive, at \$4.00 per diem, with breakfast and dinner on November 7, taken in Philadelphia, would be entered about as follows:

Nov. 9.	Allowance for subsistence, from	
	dinner, Nov. 4, to breakfast,	
	Nov. 9, inclusive, 5 days @ \$4....	\$20.00
7.	Increase in allowance of \$1 per	
	diem for one-half day in Phila-	
	delphia (breakfast and dinner)....	.50

1000

1000 1000 1000 1000

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9 November, 1912.

EMPLOYMENT WITHOUT APPOINTMENT.

The method of interpreting and enforcing the law which permits the employment, without appointment, of laborers and others, outside of Washington, for not to exceed thirty working days in a period of one year, has been somewhat changed.

Heretofore, the law has been so construed as to prevent the employment of anyone, without appointment, for more than thirty working days during any period of 365 consecutive days.

It is now and hereafter will be so construed and applied so to consider the fiscal year as the period of one year during which the restriction is to apply. In other words, hereafter the employment of anyone, outside of Washington and without appointment, will be permitted for not to exceed thirty working days during any one fiscal year.

SUGAR BEETS IN THE SCOTTSBLUFF ROTATIONS.

The following table of data relative to the results obtained with sugar beets in the irrigated rotations at Scottsbluff has been compiled from a report recently submitted by Mr. Holden. The average weight per beet and the percentage of tops were estimated by making actual determinations on a representative row in each plat. The plats reported on in the last column are those which had to be reseeded after the heavy wind storm of May 26-27.

	Seeded once.		Reseeded.
	Three Manured plats.	Six Unmanured plats.	5 plats; 4 unmanured; 1 manured.
Comparative stand (per cent.)...	74.	76.	98
Maximum yield (tons per acre)...	22.41	19.47	15.29
Minimum " " " " ...	19.41	15.82	12.68
Mean " " " " ...	21.09	17.79	13.91
Aver. weight per beet (ounces)...	33.42	27.45	16.19
Percentage of tops.....	18.	19.	23.

SECRET

MEMORANDUM FOR THE SECRETARY OF DEFENSE

SUBJECT: [Illegible]

[Illegible text block]

1. [Illegible]

[Illegible text block]

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9 November, 1912.

FIELD NOTES.

Truckee-Carson.

The maximum temperature during the week of October 26 was 71, minimum 20.

Messrs. Headley and Heisey made a survey of the sugar beet field of Mr. Thomas Dolf. This is old alfalfa land, and a high yield is being obtained. Mr. Dolf has kept an accurate account of the cost of producing the crop, and the record of the tonnage and sugar content will be obtained from the factory.

Similar records will also be obtained from other fields where the beets have been grown on new land of both adobe and sandy soils. These records are for the purpose of ascertaining the cost per acre and net profits of growing sugar beets.

The total yields of alfalfa from the various fields on the Experiment Farm from three cuttings show a maximum of 8.3 tons per acre (on Field N), a minimum of 1.4 tons (on Field F-22 to 27, inclusive), and a mean yield from the ten fields harvested of 4.53 tons per acre.

The fertilizer test of onions on the ranch of Mr. A. R. Merritt was harvested. The length of the rows in this field was approximately 290 feet. Following are the comparative yields:

Fertilizer.	Fertilized Check	
	rows.	rows.
	Average Yields — lbs.	
Nitrate of soda.....	67 50	71 17
Ammonium sulfate.....	68 25	61 00
Acid fosfate.....	66 00	57 60
Rock fosfate.....	50 75	46 50
Bone meal.....	45 50	43 50
Gypsum.....	58 50	63 00
Potassium chlorid.....	81 00	83 33
Kainit.....	77 00	87 17
Acid fosfate and sodium nitrate	84 50	85 00
Nitrate of soda and potassium chlorid.....	81 00	83 50
Acid fosfate and potassium chlorid.....	88 00	86 00
Tankage and potassium chlorid..	75 00	83 25
Complete.....	70 00	68 50
Complete and gypsum.....	68 00	69 00
Complete.....	68 80	67 40

1900

1. The first group of people who are interested in the study of the history of the United States are the people who are interested in the history of the United States.

FIELD NOTES.

Huntley.

The maximum temperature during the week of October 26 was 92, minimum 20; precipitation 0.05 inch.

During the week potatoes in Field K and part of the beets in Field B were harvested, and the stubble plats in Field K were plowed.

It has been very difficult to get labor for hand work in the beets, and because of the unusual amount of rain this fall the beet harvest has been considerably delayed. Up to date only about half of the beets on the Project have been harvested.

Yield of Potatoes — Field K.

Rotation.	Plat.	Harvested.	Pounds per plat.	Bushels per acre.
20	KV-5	10/23/12	4107	273.6
24	KV-9	10/23/12	3944	262.8
25	KIV-6	10/23/12	6201	413.2
26	KV-11	10/24/12	4004	266.8
27	KV-20	10/24/12	1475	98.4
30	KIV-15	10/24/12	3078	205.2
31	KIII-13	10/25/12	2992	199.2
40	KIV-3	10/25/12	3168	210.4
44	KIV-13	10/25/12	3569	237.6
60	KIII-10	10/25/12	3425	228.4
61	KIII-4	10/25/12	4107	273.4
4	KIV-21	10/26/12	3509	233.6
21	KV-13	10/26/12	4060	270.4

The yields from the second cutting of alfalfa on Field K are as follows:

THE UNIVERSITY OF CHICAGO

PHYSICS DEPARTMENT

REPORT OF THE
COMMISSIONERS OF THE
SCHOOL OF THE ARTS
AND SCIENCES
FOR THE YEAR 1900-1901

CHICAGO, ILL.,
PUBLISHED BY THE
UNIVERSITY OF CHICAGO
PRESS, 1901

PRINTED BY THE UNIVERSITY OF CHICAGO PRESS

9 November, 1912.

FIELD NOTES.

Huntley (continued)

Alfalfa Yields — Field K.

Rotation.	Plat.	Harvested.	Pounds per plat.	Pounds per acre.
5	KIV-22	10/ 3/12	360	1440
40	KIV-1	10/ 3/12	215	860
	KIV-2	10/ 3/12	100	400
42	KIV-7	10/ 3/12	510	2040
	KIV-8	10/ 3/12	470	1880
44	KIV-11	10/ 3/12	450	1800
	KIV-12	10/ 3/12	465	1860
60	KIII-7	10/ 3/12	440	1760
	KIII-8	10/ 3/12	380	1140
	KIII-9	10/ 3/12	410	1640
61	KIII-1	10/ 3/12	380	1520
	KIII-2	10/ 3/12	255	1020
	KIII-3	10/ 3/12	320	1280
67	KII-1	10/ 3/12	335	1340
	KII-2	10/ 3/12	300	1200
	KII-3	10/ 3/12	290	1160

San Antonio.

The maximum temperature for the week ending November 2 was 85, minimum 29.5; greatest daily range 41. A killing frost occurred on the morning of November 2.

One man and team were kept busy practically the entire week preparing for and seeding the oats on the rotation plats. Field peas were seeded on plats B6-2 and 10 as green manure crop, following corn in substitution for cowpeas, it having been found that cowpeas after corn is not practicable on account of the usual drouth during the summer. Cowpeas for green manure on plat A5-12 were plowed under on Saturday. Rye was seeded on plat B6-18 as a green manure crop. Sorghum, which has made some growth since the first cutting, was cut immediately after the first on Saturday. Cotton

1912

1913

1914

1915

1916

1917

1918

1919

1920

1921

1922

1923

1924

1925

9 November, 1912.

FIELD NOTES.

San Antonio (continued)

stalks on the rotation plats and other fields were piled and burned the first part of the week.

Messrs. Hastings and Blair made a trip to San Marcos and Llano the first part of the week. A part of one day only was spent in San Marcos to secure seed of *Aesculus*. The trip to Llano was made for the purpose of securing budwood of some hybrid and other forms of *Prunus texana*. Wood from the *Eolen* hybrids was secured as well as others in the vicinity of Valley Springs.

Scottsbluff.

The sugar beet harvest was finished on Tuesday, October 29, and the crop was gotten in in good shape. The soil was in excellent condition throughout the harvest. The highest tare was 7 per cent, and this was on the late seeded beets, the tare being due to the immature roots holding the soil. It was found that where the sugar beets had only 65 per cent stand of early seeding there was a much larger yield than where there was a 100 per cent stand of the late seeding; the difference being about 5 tons per acre.

A snow storm occurred Wednesday and by Friday the thermometer registered 12°.

On Friday cornhusking on the dry land rotations was commenced. The yield of this corn will be much better than was expected.

The late seeding of alfalfa (seeded August 20-22) is going into the winter in fair condition. This alfalfa did not make as much growth this fall as in past years. This was due to the exceedingly cold weather during August and September. The plants are about 3 inches high and well stooled; the root system is well developed, and there is no reason why it should not go through the winter with a minimum of loss. As soon as the snow leaves the ground a count will be made of the number of plants and a stand estimate will be made.

9 November, 1912.

FIELD NOTES.

Scottsbluff (continued)

A census taken on October 1 to determine the stand on Plat KV-1, continuous alfalfa, indicated a stand of 854,500 plants per acre. On August 13 a stand of 818,000 plants per acre was estimated on the same plat. The increase is to be expected, as the alfalfa was planted last spring. The estimates are made by counting the plants on 8 representative areas, each 3.5 feet square ($1/4000$ acre). The purpose of the successive estimates is to determine the period and rate of increase and the time of beginning and rate of decline in alfalfa stands.

Belle Fourche.

The maximum temperature for the week of November 3 was 64, minimum 23; precipitation 0.29 inch, composed of two falls of snow on the 28th and 31st October of 0.11 and 0.18 inch, respectively.

Plats 27 to 50, on Field A-III, have been plowed, and 28 and 29 subsoiled for beets 14 and 18 inches deep.

The fall-plowed plats in the irrigated rotations that were grown to cultivated crops this season have been plowed, and the disking of all the fall-plowed plats in these rotations has been started.

The dynamometer ordered from Fairbanks, Morse & Company has been received and tried out in a preliminary way on land that has been in potatoes and corn. In each plat the draft was practically the same. The machine is of 500 pounds capacity and was hooked into one of the traces. The maximum load was 200 pounds, minimum 125 pounds, average 150 pounds. Multiplying this by 8, the number of traces, makes a draft of 1200 pounds to plow a furrow 10 inches wide and 8 inches deep, traveling 1.75 miles per hour. The type of plow used was a disc and the ground was in an average moisture condition.

9 November, 1912.

FIELD NOTES.

Delta.

The maximum temperature during the week of October 26 was 73, minimum 24.

A heavy frost on the morning of the 24th killed the corn, beans, and late potatoes on the State and Delta Association experimental plats.

	Huntley.	Truckee- Carson.	Belle Fourche.	
Mean temperature	44.7	46.90	45.03	
Maximum "	79.	78.	85.	
Minimum "	17.	19.	23	
Rainfall	3.25	1.10	.51	
Av. wind velocity	4.4	5.40		
Days clear	18	18		
Days partly cloudy	7	5		
Days cloudy	6	8		

16 November, 1912.

A METHOD OF ESTIMATING AND REPORTING CROP STANDS.

A fairly satisfactory method of estimating the stand of a closely planted field crop, such as alfalfa or grain, is as follows: A number of representative areas, each 3.3 feet square, are selected on each plat and the plants within the area are counted. On a tenth-acre plat, if the stand appears to be very uniform, four areas will ordinarily be sufficient. Each area, being 3.3 feet square, contains 10.89 square feet, or $1/4000$ acre; and four such areas contain $1/1000$ acre. If the stand on the plat is not reasonably uniform, the plants in at least eight areas should be counted; and the same is true where the plats are larger than a tenth-acre. In the field notebook it is desirable to record the count of each area, as "A-269; B-187; C-282; D-246; total 984". In this way the uniformity of the stand is indicated; and if the numbers are widely different it is seen at once that more than four areas should be counted. A square frame measuring 3.3 feet on a side and made of light strips of galvanized iron is very convenient for marking the areas.

For purposes of comparison, it is desirable to use "Thousand plants per acre" as the basis of reporting crop stands. The common practice of reporting stands in percentages is meaningless unless carefully explained; and stands so reported for one farm are not readily comparable with results on other farms. If, for example, a stand of "75 per cent" is reported from an alfalfa plat at the Belle Fourche farm, it may mean that this plat contained 75 per cent of the number of plants on the best plat at Belle Fourche, or 75 per cent of the mean number of plants on several plats, or 75 per cent of what the estimator at Belle Fourche considered a "perfect stand", or a number of other very indefinite things. If, on the other hand, the number of plants counted in four representative areas (each 3.3 feet square) on the plat is 984, and the stand is reported as "984 thousand plants per acre", the result is definite, clear, and fixed, and can readily be compared with similar figures taken at any place or at any time. The same method of reporting might well be used for the inter-tilled crops also, where the stand is estimated by counting the plants in one or more representative rows. Where such a constant basis

16 November, 1912.

A Method of Estimating and Reporting Crop Stands (continued)

is used there is no difficulty in calculating results to a percentage basis should this be thought desirable in some instances. The expression "Thousand plants per acre" is rather cumbersome, but in submitting tabulated reports the term need not be used except as an explanatory footnote, such as must also be used where stands are reported in percentages if the figures are to mean anything. If such a footnote were used, the "stand" column in the table would contain only the figures "984" to express a stand of 984 thousand plants per acre.

FIELD NOTES.

Umatilla.

During the week of November 2 the minimum temperature was 60, minimum 24; precipitation, 0.2 inch.

Mr. Allen was at Corvallis during the week, completing and turning in his report to the Director of the Oregon Station.

The trees in the orchard are being manured with the cleanings from the stock cars.

The Jumbo variety of peanuts has been found to be the best producer here, with Spanish and African following in the order named.

Delta.

The maximum temperature during the week of November 2 was 70, minimum 28. The weather remains cool and the winter rains have set in.

The week was devoted to digging potatoes for field selections and tests.

Fall plowing has been commenced.

16 November, 1912.

FIELD NOTES.

Huntley.

The maximum temperature during the week of November 2 was 69, minimum 13; precipitation 1.73 inches.

Because of the stormy weather no field work was done during the week. A heavy rain on the 27th was followed by snow and freezing.

Corn in rotation No. 67 has been hogged and showed a gain of 97 pounds, which, at the present price of 8¢ a pound, would give a return of \$31.04 per acre.

Truckee-Carson.

Maximum temperature during the week of November 2 61, minimum 19; precipitation 0.10 inch.

The corral was cleaned and the manure spread on the garden; the work of plowing Y-1 and Y-10 was completed; work was begun on the drainage system; and surveys of several beet fields were made.

Mr. Heisey has moved from the tent to the room in the Superintendent's house formerly used by transients.

Belle Fourche.

During the week of November 9 the plowing of all plats in the irrigation rotation experiments that were not in cultivated crops the past season was completed, and all plats that have been plowed have been double disced.

The alfalfa plats in the time of irrigating alfalfa experiment have been irrigated.

Owing to the unusual amount of rainfall during the autumn, the plats in the irrigated rotations have not been irrigated, but for comparison two plats outside of the rotations have been irrigated.

The corn in the irrigated rotations, dry-land rotations, and variety plats has been husked. The best yield of corn in the irrigated rotations was 37 bushels per acre and the poorest 24, with an average yield of 28.6 bushels per acre.

The hogs have been removed from the corn plat, on which they made a gain of 85 pounds. This gain

FIELD NOTES.

Belle Fourche (continued)

is the equivalent of \$27.30 per acre, with hogs at 8¢ a pound.

The plowing and disking of the garden and grounds have been completed.

San Antonio.

The maximum temperature during the week ending November 9 was 82, minimum 39; greatest daily range, 41; precipitation, 0.04 inch.

Plats A5-4-16 were subsoiled. The sorghum on the rotation plate was cut the second time. Eighty-four head rows of Appler's Red Rustproof oats were planted on A3 on Friday. The picking of cotton on the Herbst tract was completed and the cotton shipped to Victoria. Plowing of Field A4 was completed. Several crown grafts of apricots and plums on peach stock were made in nursery on A3. The canna tubers were dug and stored for the winter. Plantings of various hardy winter ornamental annuals were made about the grounds.

Mr. Meade arrived from California on the 8th.

23 November, 1912.

TELEPHONE.

Every voucher covering rent of telephone should show that the telephone is installed in a public office and should give the name and location of the office, i.e., "Installed in the public office of the San Antonio Experiment Farm, operated by the U. S. Department of Agriculture near San Antonio, Texas", or "Installed in the public office of the Umatilla Experiment Farm, near Hermiston, Oregon, operated by the U. S. Department of Agriculture in cooperation with the Agricultural Experiment Station of the State of Oregon."

ENVELOPES.

The recent purchase by one of our field men of 400 No. 9 envelopes at 20¢ per hundred has called attention to the fact that the law provides that all envelopes for use by the Executive Departments shall be purchased under contract secured by the Postmaster General. This provision is contained in the Act of June 26, 1906, ch. 3546, (32 Stat. L. 476), as follows:

"The Postmaster-General * * * shall contract for a period not exceeding four years, for all envelopes, stamped or otherwise, designed * * * for use by the * * * Executive Departments, and all Government bureaus and establishments, and the branches of the service coming under their jurisdiction, and may contract for them to be plain or with such printed matter, as may be prescribed by the Department making requisition therefor: * * *"

According to this law, no envelopes can be secured in the open market, whether for field stations or for use in Washington.

23 November, 1912.

COOPERATIVE WORK.

In view of the constant development of cooperative work at our various field stations and the changes continually taking place therein, it has been decided to hereafter maintain a definite record of this feature, to be revised January 1 and July 1 of each year. To that end, a tabulated chart has been arranged to show all the important points involved, and it is requested that farm superintendents will in future keep this office advised of all changes in cooperative work, especially when current work is discontinued or new work begun. In order that this information may conform to the form adopted, it should be forwarded under the following heads:

Name of cooperating office.
Form of agreement, and date and duration when possible.
Nature of work. (describe briefly).
Area occupied.
Irrigated?
Is supervising official detailed by cooperating office?
Number of laborers paid by cooperating office, length of employment of each, salaries paid, etc.
Authorizations drawn by each cooperating office for prosecution of work on farm, with amounts.
Other contributions by cooperators, description and amount.
Total contributions by each cooperator.
Remarks.

All these reports should be on a six months' basis for the periods July 1 to December 31 and January 1 to June 30.

Special care should be taken not to include in a report for a six months' period any contributions by cooperators for the entire year or any part thereof beyond the six months covered by the report.

23 November, 1912.

MEETINGS OF ASSOCIATIONS, ETC.

Memorandum for Heads of Offices No. 22, dated November 18, 1912, and signed by the Chief of Bureau, reads as follows:

"Relative to attendance of officers and employes of the Department at meetings, it will be necessary to give careful consideration to every case that arises, and before action is taken or promises are made the Chief or Acting Chief of the Bureau should be consulted. Generally speaking the expenses of travel for attendance at meetings, where such attendance will be in furtherance of the legally authorized work of the Bureau, may be paid from the appropriations for the Bureau. Many requests are received, however, from colleges and schools, chambers of commerce, horticultural societies and similarly organized bodies for lectures on various topics. In the majority of such cases the traveling expenses for attendance at such meetings should be borne by the organization requesting the lecturer and not by the Bureau. Where the addresses to be given relate to the work of the Bureau as authorized by law, permission will generally be given to attend without other expense to the organization making the request than for travel and subsistence, the salary of the lecturer being paid by the Bureau while making the trip."

TRAVEL.

Memorandum for Heads of Offices No. 24, dated November 18, 1912, and signed by the Chief of Bureau, reads as follows:

"For your information I quote below a letter addressed to the Auditor for the State and Other Departments by the Acting Secretary of Agriculture, same showing the Department's interpretation of General Order No. 158 in the matter of a per diem allowance in lieu of subsistence for the fractional part of a day:

23 November, 1912.

Travel (continued)

"DEPARTMENT OF AGRICULTURE
Office of the Secretary
Washington

October 24, 1912.

To the Auditor
for the State and Other Departments.

Sir;

Referring to General Order No. 158 of this Department, copy inclosed herewith, in the matter of a per diem allowance in lieu of subsistence, I beg to advise you that it was the intention to allow one-half of a full day's per diem where the fractional part of a day consists of one-half day or less, and where the fractional part consists of more than a half-day, to allow a full day's per diem, and the last paragraph of the Order is so interpreted in this Department.

Very respectfully,

(Signed) W. M. HAYS,
Acting Secretary."

FIELD NOTES.

Umatilla.

The maximum temperature during the week of November 9 was 62, minimum 33; precipitation 0.44 inch.

The alfalfa was plowed out to a distance of six feet back from the trees in the orchard in Cl. The alfalfa fields were gone over with a spring tooth harrow to weed out the Russian thistle, which has gotten quite a start during the past season.

The rye planted in the orchard and bare spots to prevent blowing is growing nicely now, since the late rains. The dry fall had made it tardy in starting and it was necessary to re-seed part of the ground.

23 November, 1912.

FIELD NOTES.

Scottsbluff.

For the week of November 9 Mr. Knorr reports all of the dry-land corn husked and the hauling commenced. The yields are running much better than had been expected.

The alfalfa plats in the irrigated rotations were broken, the soil being in good condition for plowing. The plowing work is being pushed as much as possible before the ground freezes.

Foundation for the machine shed extension has been laid and it is hoped to begin work on the shed during the current week.

Huntley.

The maximum temperature during the week of November 9 was 53, minimum 26.

The ground was too wet to permit of any field work during the week.

For the past three weeks no beets have been delivered over the dump at this place; and, except on the lighter soils along the river, it has not been possible to dig the beets. The price for topping has been advanced in many cases to \$15 per acre, and at that it is difficult to get the labor.

Work has been commenced on the new mess house.

Delta.

The maximum temperature during the week of November 9 was 70, minimum 34.

A tally has been taken of the number of hills in each row of the two outside and two center rows in the fertilized potato plats.

These hills have all been dug and the potatoes are being sorted for yield tests.

23 November, 1912.

FIELD NOTES.

Truckee-Carson.

The maximum temperature during the week of November 9 was 72, minimum 23; precipitation 0.05.

A survey was made of five small plats of onions on the ranch of George Burton, the total area measuring 1.96 acres. The total yield of onions secured from this area was 1075 sacks, averaging about 83 pounds to the sack and giving an approximate yield of 20 tons per acre. Mr. Burton thinks the yield would have been larger had they received one more irrigation in the heat of summer.

A survey was made of the sugar beet field on the ranch of John Oats, which was found to contain an area of 1.16 acres. This field produced a net tonnage of 29.185, with gross receipts amounting to \$164.30. The average per cent of sugar in beets was 18.

A day was spent by three of the men collecting seed of the native nut grass. It is proposed to test its adaptability to the soil in the Y series, which is strong with black alkali, with a view to using it as a pasture grass.

Belle Fourche.

The maximum temperature during the week of November 16 was 60, minimum 15; no precipitation.

During the week all the drops in the main ditches in the irrigated rotations were completed, fields O and P were double disced, and the plowing and disking of the grounds completed.

Scottsbluff.

During the week of November 16 the corn stover from the dry-land rotations was hauled and the corn from the irrigated rotations was husked and the stover hauled.

One team was busy the greater part of the week hauling lumber from town for the extension of the ma-

23 November, 1912.

FIELD NOTES.

Scottsbluff (continued).

chine shed. Work was begun on the shed Wednesday, the farm hands helping, in order to get it under roof before bad weather sets in.

Mr. Pfaender left the station for Mandan, N. Dak., where he will meet Mr. Chilcott and then proceed to Washington.

The yields of corn from Field K are as follows:

Series.	Plat.	Yield. per acre. Bushels.
I	18	58.6
II	2	65.0
IV	1	67.3
IV	3	64.4
IV	6	58.3

Average..... 62.7

The corn was a little moist when gathered. Samples have been taken from each plat and moisture determination made.

San Antonio.

The maximum temperature during the week ending November 16 was 82, minimum 33.5; greatest daily range, 43.

The plow was kept busy throughout the week on the rotation fields, the following plats being plowed: A4-2; A5-2-7-9-13-17; A6-3-9; B5-34-10-12-18; B6-5-7-11.

The second cutting of sorghum for forage was hauled in during the week, the yield being very light. Plat B5-4 was manured and one load of manure was put on A5-5.

Three-tenths of an acre of Canada field peas were seeded on A5-2, S.P.I. #30134, and three 1/10 acre plats were also seeded on B4 — one in 8" drills, one in 3 ft. rows (both S.P.I. #30134), and one with

23 November, 1912.

FIELD NOTES.-

San Antonio (continued).

seed obtained from Boerne, Texas. This variety has been grown there for several years and has proved particularly well adapted to those conditions, it is reported.

In a series of thinning experiments carried on during the season the following yields of seed cotton were obtained with Durango and Egyptian cottons:

Distance apart of plants in row. Inches.	D u r a n g o .		E g y p t i a n .	
	Irrigated Pounds.	Not Irrigated Pounds.	Irrigated Pounds.	Not Irrigated Pounds.
24	1204	410	940	300
18	1383	490	1080	280
12	1403	550	1040	260
6	1510	520	1060	340

The same experiment was carried out with Triumph without irrigation, and, although the yields are not entirely in shape for reporting, it appears that in every case the 6" distances are going to yield better than any of the other plantings.

30 November, 1912.

SEWAGE DISPOSAL.

Wisconsin Experiment Station Circular of Information No. 54, entitled "Sewage Disposal for Rural Homes", contains some material of considerable interest and value to the field men in connection with sewage disposal. The principles governing the successful use of septic tanks are clearly stated, and directions for the construction and operation of both single and double chamber tank systems are given. The circular contains itemized lists of material and labor necessary to construct the two systems and indicates that the cost will range between \$60 and \$70. Copies of the circular may be obtained by writing to the Wisconsin Experiment Station at Madison.

REPORTING EXPERIMENTAL RESULTS.

Some difficulty is encountered from time to time in the Washington office in connection with finding reports of crop yields and other experimental data sent in by the field men. The difficulty is due mainly to the fact that some of this material is submitted as a part of the weekly reports, some in the general correspondence, and some as special reports. As a result of this practice the material is somewhat scattered in the office files.

It is desired that hereafter all reports relative to crop yields, bridge readings, water table observations, and all other experimental data be incorporated in the weekly reports, and that each sheet be so marked as to make its identity certain.

30 November, 1912.

SOME FACTORS INFLUENCING THE DRAFT OF PLOWS.

Since the publication in the Bulletin of October 26 of some material relative to the draft of plows, some additional data have been compiled. This material is taken from King's "Physics of Agriculture", Ellis & Rumely's "Power and the Plow", and Davidson and Chase's "Farm Machinery and Farm Motors". It is valuable mainly in that it suggests tests which might well be included in the dynamometer trials at the Belle Fourche, Scottsbluff, and San Antonio Farms.

Tests of draft in the past have shown marked effects due to: (1) The kind of plow; (2) condition of plow; (3) adjustment of draft; (4) use of coulters of various kinds; (5) size of furrow; and (6) character and condition of soil. The generally used unit of draft measurement is the draft in pounds per square inch of cross section of furrow. King found that the draft per square inch of cross section was 5.384 lbs., with a stubble plow, and 4.453 lbs. with a sod plow -- a difference of 20.9 per cent in favor of the sod plow. This difference is supposed to be due principally to the amount of the pulverizing work done by the stubble plow.

A marked increase in draft is noted when the plow-share is allowed to get dull. There has been found a difference of 6.7 per cent in favor of an old share resharpened as compared with the same share before resharpening, and a difference of 36 per cent in favor of a new share as compared with an old share resharpened. It is desirable to have the draft so adjusted as to eliminate angles in the line of draft between the points of attachment. King found that tug straps attached to the breeching resulted in a downward pull of 50 pounds per horse -- approximately one-third the total pull exerted by a 1200-pound horse. This 50-pound pull is not only lost, but it works an injury to the horse as well. A saving of 7.5 per cent of the draft was made by lengthening the hitch by using a 13-foot chain, whereby the angle between the base line and the line of draft was reduced. King found a saving of 20 to 25 per cent of the draft by using a rolling coulter in sod ground. Sanborn noted, however,

30 November, 1912.

Some Factors Influencing the Draft of Plows (continued)

that in some cases the rolling coulter may increase the draft because of its tendency to lift the plow out of the ground.

The Utica trials determined that 55 per cent of the draft of plows is caused by cutting the furrow slice, 35 per cent by the friction on the sole, and only 10 per cent by lifting and turning the furrow slice. A furrow 4 x 12 inches has a line 16 inches long to be cut and a cross section of 48 square inches; that is, the proportion between the cutting line and the cross section is 1 to 3. A furrow 6 x 14 inches has a cutting line of 20 inches and a cross section of 84 square inches— a proportion of 1 to 4.2. The large furrow, therefore, is less influenced by the cutting line and the draft is relatively less per unit of cross-section. From this standpoint, a large furrow is preferable, and a plow must be made to cut its full normal capacity if the highest efficiency of the draft is to be realized. Instances of the effect of various kinds of soil on the draft of plows were noted in the Bulletin of October 26.

It would be desirable to have the dynamometer trials at Belle Fourche, Scottsbluff, and San Antonio include the six influential factors enumerated above so that comparisons of the effect of each factor at the three farms could be made.

AUTOMOBILE OR STAGE HIRE.

In the audit of an expense account submitted by Mr. Hastings, which carries items for the use of an automobile which was shared by Messrs. Blair and Letteer but paid for entirely by Mr. Hastings, in accordance with instructions contained in the quotation from the "Administrative Notes and News" under the head of "Payment of Automobile or Stage Hire", on page 132, Vol. I, of the Weekly Bulletin issued January 27, 1912, it has developed that the policy outlined therein, while promulgated by this Bureau, has not the approval of the

30 November, 1912.

Automobile or Stage Hire (Continued)

auditors of the Division of Accounts. The instructions referred to should not, therefore, be followed hereafter, but each traveler should pay his proportionate share of the hire of an automobile and secure a subvoucher therefor and submit it with his account. While it is not yet definitely known in this office whether or not under such circumstances the auditors would require that the subvoucher give the names of the others sharing in the use of the automobile, with information as to whether they are employees of the Department, it is thought possible that this may be required, and it is suggested that such information be given to avoid possible delays.

FIELD NOTES.

Truckee-Carson:

The maximum temperature during the week of November 16 was 62, minimum 19; precipitation 0.03.

A permanent flume has been constructed across the ditch back of the office for the purpose of conveying irrigation water to the lawns.

A large order of currants, gooseberries, raspberries, blackberries, and grape plants, and bulbs has been received.

Mr. Headley left the station on the 15th enroute to Washington.

Huntley.

During the week of November 16 the maximum temperature was 69, minimum 27; precipitation 0.54.

The week was devoted to harvesting the garden crops and sugar beets. It was possible to work in the beets by plowing in the morning when the ground was frozen, but not much headway was made, and two acres remain unharvested.

Cornhusking was started on the dry-land rotation field.

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30 November, 1913.

FIELD NOTES.

Scottsbluff.

The weather throughout the week of November 23 was rather disagreeable.

When possible, one team was kept busy breaking alfalfa land; the remainder of the time help was given to the carpenters on the machine shed.

Seed potatoes have been sorted and removed from the pits where they were placed after harvest. There has been no market for the surplus crop, and a number of fields have not been harvested, the owners feeling that they could not pay for the labor at the price the crop is bringing.

Alfalfa hay that was damaged by rains this season is now selling at \$3.00 a ton for cattle feed. A large number of cattle have been brought in from the range and are being fattened on this hay.

A census taken during the week of November 17 on three plats seeded to alfalfa in August, following oats in the rotations, gave the following results:

Plat KI-8.....	934	thousand	plants	per	acre.
" KV-13.....	654	"	"	"	"
" KVI-13.....	889	"	"	"	"

On the same date the stand of alfalfa on Plat KV-1, planted last spring, was 841 thousand plants per acre. The plants on Plat KI-8 were somewhat larger than those on the other two plats. The areas in which the plants were counted were staked off and the same areas will be used in taking the spring census in 1913.

Delta.

The maximum temperature during the week of November 16 was 67.7, minimum 29.5.

A Chinese Agricultural Association has just been organized, with the farmers and tenants on the Tule Islands as members. The main purpose of the association is an endeavor to raise and maintain the price of their truck crops, especially potatoes, on a paying basis. This season's low prices, together with the high rental for land, the increased cost of labor and supplies, and the high cost of feed, have caused many of them to fail.

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30 November, 1912.

FIELD NOTES.

Delta (continued)

The maximum temperature during the week of November 23 was 69, minimum 24.

The weather has continued very cool, with light frost on the morning of the 21st and a heavy one on the 23rd.

The week was devoted to sorting potatoes for yield tests from fields.

San Antonio.

The maximum temperature for the week ending November 23 was 74, minimum 37.5; greatest daily range, 35.5. A good rain came on the 21st, the total precipitation amounting to 1.72 in.

Plowing of the rotation plats was continued and the following plats were plowed: B5-11-13-15, B6-17. Plats A5-5 and B6-3-9 were subsoiled. Plat A5-5 was manured.

The latter part of the week was devoted to sharpening tools and making minor repairs around the buildings, as it was too wet for field work.

A small planting of strawberries was made in the nursery on A3 for the purpose of testing the growth under a plant shade during the summer months. The following varieties will be tried: Excelsior, Klondyke, Lady Thompson, Michels Early, Senator Dunlap, and Haverland. During the rainy weather some labor was utilized in the greenhouse, potting seedlings.

Truckee-Carson.

The maximum temperature during the week of November 23 was 64, minimum 13.

About 3,000 feet of redwood drain pipe were made to be used in connection with the drainage system to be constructed during the winter.

Supervising Engineer Hopson and Drainage Engineer Murphy of the Reclamation Service visited the Station.

FIELD NOTES.

Belle Fourche.

The maximum temperature during the week of November 23 was 64, minimum 17; no precipitation.

All the work of putting in the field ditches in the irrigated rotation fields has been completed.

Field A-I-15 has been manured, plowed, and disced.

The following is a summary of the results obtained on fifteen plats of sugar beets in the irrigated rotations:

		7 plats plowed 4" deep.			8 plats plowed 7" deep		
	All 15 plats	5 plats irrigat- ed once	2 plats irrigat- ed twice	7 plats	3 plats irrigat- ed once	5 plats irrigat- ed twice	8 plats
Stand, per cent	40.6	49.	50.	49.3	35.6	31.4	33
Maximum yield, tons per acre,	10.40	7.60	10.40	10.40	8.40	9.50	9.50
Minimum yield, tons per acre,	4.16	5.70	4.16	4.16	7.10	7.40	7.10
Mean yield, tons per acre,	7.60	6.92	7.29	7.03	7.70	8.44	8.17
Aver. wt. per beet, ounces,	16.98	11.97	12.70	12.18	17.80	23.20	21.20

7 December, 1912.

MESS FUNDS.

Employees of the Department or of State experiment stations, detailed temporarily to an experiment farm without receiving reimbursement for their subsistence expenses, and temporary laborers should be considered as regular participants in the mess and assessed accordingly. When, owing to the brevity of their stay or to their leaving before the regular assessment time, this is impracticable, their charge per meal should approximate the assessment rate for regular participants as closely as practicable.

Attention has been called to the fact that on some of the experiment farms operated by this office the assessment rates during the winter months are very much higher than during the crop season, when the membership of the mess is much larger. It is suggested that in fixing the assessment rate on farms where this is the case the tendency might be toward equalizing this difference in part by adjusting the rates so that the reserve required by instructions given on pages 22 and 23, of Vol. II, of the Weekly Bulletin, issued April 13, 1912, might be accumulated during the crop season, or while the number of participants in the mess is larger. But it is to be expected that the rate will be higher in winter than in summer, and summer assessments should not be made with a view to creating a reserve to be exhausted the following winter.

Any attempt to adjust the rates in accordance with the suggestions given herein should not affect the rate charged official transients, concerning which instructions were given on page 83, Vol. I, of the Weekly Bulletin.

C. S. SCOFIELD.

7 December, 1912.

RESUBMITTED ITEMS.

Fiscal Regulation No. 14(e), on page 13 of the Fiscal Regulations of the Department, provides that "items suspended for explanation should be included as the last entries in the first regular monthly voucher submitted after the receipt of notice of suspension, and must be accompanied by the required explanation and the letter asking therefor."

In the past the auditors have accepted certified copies of this letter in lieu of the original, but the Treasury auditors recently returned an account, requesting that to that account and others thereafter submitted, which contain resubmitted items, the original letter carrying notification of the suspension be attached, instead of a copy. All vouchers carrying resubmitted items should, therefore, be accompanied by the original letter from the Division of Accounts which gives notification of the suspension.

FIELD NOTES.

Belle Fourche.

The maximum temperature during the week of November 30 was 47, minimum 11; precipitation 0.04, in snow.

During the week the men were engaged in hauling feed and repairing the dam on Deadman Creek. Several loads of diamond willows have been placed along the spillway of the dam to prevent washing.

Umatilla.

The maximum temperature during the week of November 30 was 55, minimum 20. The weather has been unusually open this fall and the late sown crops in the district are growing nicely.

A concrete hotbed for 6 sash was completed during the week.

7 December, 1912.

FIELD NOTES.

Scottsbluff.

Stormy weather during the fore part of the week of November 30 prevented outside work. During the latter part of the week manure was hauled and the work of hauling siloed beets to the dump was begun.

The majority of farmers have a great deal of praise for the treatment they are receiving from the sugar factory this year. Although the factory has thousands of tons of beets piled at the various dumps, they are calling for the beets the farmers have siloed, thus giving the farmers a chance to get the beets out of the fields before bad weather sets in.

Mr. Holden left November 26 for Denver and Washington.

All but one of the farm hands have stopped work for the season.

Truckee-Carson.

With his report for the week ending November 16, Mr. Headley furnished the following statement showing the profit from raising sugar beets on different ranches in the Project during the past season:

Mr. Thomas Dolf received the following results from a field of old alfalfa land. This field contained an area of 21.3 acres.

Payments:

Preparing seed bed, 12 days @ \$4.....	\$48 00	
Seed, 14 lbs. to acre, @ 15¢.....	44 73	
Seeding, 2½ days @ \$4.....	10 00	
Thinning, \$5.50 per acre.....	117 15	
Hoeing, \$2 per acre.....	42 60	
Cultivating, 5 days @ \$4.....	20 00	
Irrigating, 1st, @ 75¢ per acre.....	15 98	
Irrigating, 2nd, @ 50¢ per acre.....	10 65	
Irrigating, 3rd, @ 50¢ per acre.....	10 65	
Pulling, 10 days @ \$6.....	60 00	
Topping and loading, \$10 per acre.....	213 00	
Hauling to factory, 414.27 tons @ 35¢.....	145 00	\$737 76

7 December, 1912.

FIELD NOTES.

Truckee-Carson (continued)

(Prt. forward)

737 76

Credits.

414.27 tons, @ \$5.667.....\$2,347 56

Net Profit.....\$1,609 80

Gross receipts per acre.....	\$110 22
Cost per acre.....	34 64
Net profit per acre.....	75 58
Sugar in beets.....	18 1%

(Thinning, hoeing, topping, and loading done by contract labor.

* * * * *

Mr. John Oats, on a field of old alfalfa land containing 1.16 acres:

Net yield.....	29.185 tons
Tons per acre...	25 13
Gross receipts...	\$164 30
Gross receipts per acre...	141 64
Sugar in beets...	18.0%

Mr. G. A. Loshe, on a field of adobe soil not previously cultivated, containing 2.26 acres:

Net yield.....	8.15 tons.
Tons per acre.....	3.6
Gross receipts.....	\$52.98
Gross receipts per acre...	\$23.45
Sugar in beets.....	21.8%

Mr. A. J. Hawks, on a field of old alfalfa land, which contained 4.3 acres:

Net yield.....	81.6 tons
Tons per acre.....	18.97
Gross receipts (est.).....	463.23
Gross receipts per A (est)	107.74
Sugar in beets.....	13.8%

7 December, 1912.

FIELD NOTES.

Huntley.

The maximum temperature during the wee of November 30 was 59, minimum 15; precipitation, 0.03.

During the week sugar beets on Fields K and BVI were harvested, completing the sugar beet harvest for 1912.

YIELD OF SUGAR BEETS.

Field K.

Rotation No.	Plat No.	Date. Harvested	Pounds per plat.	Tons per acre.	Stand. Plants per acre	Ounces per Beet.
18-B	KV-4	11-19-12	5981	11.96	29824	12.8
20-B	KV-6	11-20-12	6141	12.28	27264	14.4
21-B	KV-14	11-21-12	6285	12.57	31744	12.6
22-B	KV-8	11-20-12	5832	11.66	29312	12.7
23-B	KV-16	11-20-12	7185	14.37	31104	14.7
30-C	KIV-17	11-22-12	3672	7.34	27008	8.7
31-C	KIII-15	11-19-12	4170	8.34	28160	9.4
32-C	KIV-20	11-22-12	4073	8.15	28032	9.2
40-D	KIV-4	11-19-12	4808	9.62	28672	10.7
42-D	KIV-10	11-19-12	4747	9.49	32256	9.4
60-F	KIII-12	11-19-12	4844	9.69	31232	9.9
61-F	KIII-6	11-19-12	6085	12.17	28160	13.8
67-F	KII-6	9-27-12	5134	10.26	-----	-----
2	KV-22	11-21-12	3192	6.38	25216	8.1

OFFICE OF WESTERN IRRIGATION AGRICULTURE.

SCIENTIFIC STAFF.

Washington Office.

C. S. Scofield, Agriculturist in Charge,
F. D. Farrell, Assistant.

Belle Fourche Experiment Farm.

Newell, S. Dak.

Beyer Aune, Superintendent.

Delta Experiment Farm.

Moorland, Cal.

John P. Irish, Jr., Superintendent.

Huntley Experiment Farm.

Osborn, Mont.

Dan Hansen, Superintendent.

San Antonio Experiment Farm.

San Antonio, Texas.

S. H. Hastings, Superintendent.
C. R. Lettear, Assistant.

Scottsbluff Experiment Farm,

Mitchell, Nebr.

Fritz Knorr, Superintendent.
J. A. Holden, Assistant.

Truckee-Carson Experiment Farm.

Fallon, Nev.

F. B. Headley, Superintendent.
C. J. Heisey, Assistant.

Umatilla Experiment Farm.

Hermiston, Ore.

R. W. Allen, Superintendent.

Yuma Experiment Farm.

Bard, Cal.

R. E. Blair, Superintendent.
C. E. Peterson, Assistant.

14 December, 1912.

SUBSCRIPTIONS TO PERIODICALS.

Official subscriptions to periodicals to be sent to our various experiment farms are not always renewed, but in some instances the publishers continue to send the publication after the expiration of the subscription. In one such case the publishers have turned over to a collection agency a claim for some 21 months' subscription. This case has been brought to the attention of the Acting Solicitor of the Department, who has stated that in his opinion the Department is not liable for any period beyond that covered by the official requisition, provided no authority is vested in any of the officials or employees to renew the subscription or to receive the publication from the post office subsequent to the expiration of the official subscription. Since the authority of all employees of this Department is limited to that specifically conferred by their appointments or authorizations from the Secretary, and since the authority specifically conferred in this fashion does not in the case of employees at field stations include authority to subscribe for periodicals or to take them from the post office after the expiration of an official subscription, the opinion of the Acting Solicitor would seem to indicate that the Department is not liable for subscriptions to periodicals received at field stations by any of our employees during any period not covered by an official requisition.

Some doubt exists as to whether in such cases the publishers could hold the employees personally responsible, but in any event care should always be taken to see that no periodicals are received from the post office other than those ordered by official requisition and during the period covered by such requisition; except, of course, in cases where the necessity for renewal has been overlooked or neglected and where the renewal is to be requested.

14 December, 1912.

FARM EQUIPMENT DATA.

Mr. Hastings has prepared and submitted to the Washington office a folder containing fourteen photographs illustrative of nine farm implements and tools which have been found specially satisfactory at the San Antonio Experiment Farm. Accompanying each photograph is a brief statement regarding the article illustrated. This statement gives the cost and weight of each article and briefly describes its specially desirable features. It is suggested by Mr. Hastings that it might be desirable for each farm superintendent to prepare a similar folder relative to the machines he has found most satisfactory and that all the material be assembled into some convenient form for the use of all the farm superintendents.

It is suggested that this matter be taken up by the field men and that they get together photographs and descriptions of such implements, tools, and other articles of farm equipment as have special features of possible interest to the men on the field stations. In addition to furnishing information regarding specially desirable articles, it is important to know about those which have been found undesirable. If clearly presented, such negative information will frequently be found valuable in preventing the purchase of undesirable articles.

Consideration should be given to all articles, whether complete machines or special attachments, which have uncommon features. The list might well include such articles as plows, cultivators, wagons, planters, horse collars, headgates, turnouts, gates, wrenches, locks, ditchers, hay tackle, weeders, and any other articles of equipment regarding which special information can be furnished. In addition to brief descriptions of special features, there should be given the weight of the article, where this is important; the cost at the factory or dealer's, the cost f.o.b. at the experiment farm, and the name and address of the dealers.

When all this information is assembled it will be worked up into some convenient form and kept up to date for the use of the field superintendents.

14 December, 1912.

FIELD NOTES.

San Antonio.

The maximum temperature for the week ending December 7 was 74, minimum 38; rainfall, 1.22 in.

Except on Monday no field work was done on account of the unfavorable weather conditions. The entire week was cloudy and a cold, damp, north wind blew, making it very disagreeable.

Belle Fourche.

The maximum temperature during the week of December 7 was 47, minimum 7; precipitation 0.03 inch, in snow.

The men were employed during the week in repairing the dam on Deadman Creek, repairing buildings, hauling hay, and fencing.

Delta.

The maximum temperature during the week of November 30 was 72, minimum 25.

Mr. S. M. Fulton, Traveling Agent for the Santa Fe Refrigerator Despatch Company, with offices in San Francisco, and Mr. J. S. Leeds, Manager of the same line, with offices in Chicago, were visitors at the farm November 30.

The maximum temperature during the week of December 7 was 62, minimum 21. Sunday, the 1st, was the coldest morning of the winter, the thermometer registering 21° at 5.00 a.m.

Mr. Wm. Garden, County Horticultural Commissioner from San Joaquin County, visited the farm on Tuesday.

Mr. Roy L. Anderson, representing the California Corrugated Culvert Co., of West Berkeley, visited the farm on Saturday. The irrigation on the experimental plots and that on the Delta Association plots is done through an 18" corrugated culvert and headgate purchased from this concern.

14 December, 1912.

PERSONAL.

Messrs. Headley, Holden, and Letteer have reported at the Washington office.

Mr. C. E. Brodie, who has been acting as clerk at the Huntley Experiment Farm for the past eighteen months, will report at the Washington office December 16 in order to help out with the rush of work incident to the presence of the field men.

21 December, 1912.

DISTANCE OF PLANTING AND THINNING TEST
WITH SUGAR BEETS AT HUNTLEY.

The results obtained at Huntley this year in the test of planting sugar beets in rows of different widths and of thinning the beets to different distances within the row have recently been reported by Mr. Hansen. The experiment was conducted on Field BVI. Each variation in the experiment was tried in triplicate, and each plat contained four rows 186 feet long. The following table summarizes in detail the results obtained:

	Number of Plats	Stand. thousand plants per acre	Yield per acre. Tons.	Average weight per beet. Ounces.	Sugar Content. Per cent.
Rows 18" apart, thinned to 6"	3	42.9	17.4	13.2	19.5
Rows 18" apart, thinned to 9"	3	34.1	15.5	14.7	18.4
Rows 18" apart, thinned to 12"	3	29.1	17.8	19.5	18.6
Rows 18" apart, thinned to 15"	3	23.5	14.9	20.4	18.5
Rows 18" apart, thinned to 18"	3	20.6	14.6	23.4	19.1
Rows 20" apart, thinned to 6"	3	42.6	15.4	11.6	19.2
Rows 20" apart, thinned to 9"	3	32.3	14.3	14.3	18.3
Rows 20" apart, thinned to 12"	3	26.8	16.1	19.1	19.2
Rows 20" apart, thinned to 15"	3	20.4	14.8	23.4	18.1
Rows 20" apart, thinned to 18"	3	17.5	15.1	27.8	18.8
Rows 24" apart, thinned to 6"	3	34.6	16.2	15.1	19.7
Rows 24" apart, thinned to 9"	3	26.7	15.3	18.5	18.2
Rows 24" apart, thinned to 12"	3	22.4	14.1	20.2	19.0
Rows 24" apart, thinned to 15"	3	17.6	15.3	27.3	17.9
Rows 24" apart, thinned to 18"	3	14.9	15.9	34.1	18.6
Rows 18" apart, 5 rates of thinning	15	30.0	16.1	18.3	18.8
Rows 20" apart, 5 rates of thinning	15	27.9	15.2	19.2	18.7
Rows 24" apart, 5 rates of thinning	15	23.3	15.4	23.2	18.6
Thinned to 6", 3 widths of row	9	40.0	16.3	13.3	19.4
Thinned to 9", 3 widths of row	9	34.0	15.1	15.8	18.3
Thinned to 12", 3 widths of row	9	26.1	16.0	19.6	18.9
Thinned to 15", 3 widths of row	9	20.5	15.0	23.8	18.2
Thinned to 18", 3 widths of row	9	17.7	15.2	28.4	18.8
Average of all.....	45	27.0	15.5	20.2	18.7

21 December, 1912.

Distance of Planting and Thinning Test
with Sugar Beets at Huntley (continued).

The table shows that, from the standpoint of yield, the most favorable width of row, irrespective of distance of thinning, was 18 inches, the average yield of the 15 plats planted in rows 18 inches apart being 16.1 tons per acre. The best distance of thinning, irrespective of width of row, was 6 inches, the yield of the 9 plats thinned to 6 inches being 16.3 tons per acre. The highest yielding combination of width of row and distance of thinning is shown to be 18 inch rows thinned to 12 inches, the average yield of the 3 plats involved being 17.8 tons per acre.

It is shown that without exception the average weight per beet increased as the width of row or distance of thinning was increased. The average sugar content of the beets on the different plats did not vary greatly; the extreme range was only 1.6 per cent; 19.7 per cent being the highest and 18.1 per cent the lowest. There was some tendency for the smaller beets to test high in sugar, but there were several exceptions.

Comparison with Beets in the Rotations.

There is given below a comparative summary of some of the results obtained in the above test and those obtained with beets in the rotation field. The beets in the rotation plats were planted in rows 20 inches apart and thinned to about 10 inches within the row. Field K, where the rotations are located, was all in oats in 1911, so that the beets this year all followed oats; in Field BVI the beets followed beets. It has frequently been noted on the Huntley Project that where beets follow oats the yield of the former is markedly depressed:

	Beets after Beets. Field BVI.	Beets after Oats. Field K.
Number of plats.....	45.	14.
Stand, thousand plants per acre	27.0	28.1
Yield, tons per acre.....	15.5	10.3
Average weight per beet, ounces	20.2	11.24

21 December, 1912.

HALF-HOLIDAYS.

The following Special Order, dated December 17, and addressed to Chiefs of Bureaus, Divisions, and Offices, has been issued by the Secretary of Agriculture:

"You are hereby authorized to excuse all employees, who may be spared from duty, on the afternoon of Tuesday, December 24, beginning at 1.00 o'clock p.m.; also, on Tuesday, December 31, 1912, beginning at the same time.

Applications for four hours annual leave on the days mentioned may entitle employees to a full day."

JURAT FEES.

Under date of November 5, 1912, the Chief of the Division of Accounts advised the Chief of this Bureau as follows:

"I beg to advise you that the Comptroller of the Treasury, in a decision rendered September 18, 1912, to the Secretary of the Interior, holds that the act making appropriations for the sundry civil expenses of the Government for the fiscal year 1913, approved August 24, 1912, is not retroactive, and that section 8 of said act, which prohibits reimbursement by the United States for expense of notary fee to expense accounts is effective only from the date of approval.

You are, therefore, advised that all suspended items of notary fees, if resubmitted, will be allowed, provided the oath was taken prior to August 24th.

The letter from this office making the suspension should accompany the account."

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21 December, 1912.

AUTHORIZATIONS.

Memorandum for Heads of Offices No. 26, dated December 17, 1912, reads as follows:

"On and after January 1, 1913, the present method of handling letters of authorization for single trips will be discontinued. No letters of instructions under authorizations for single trips will be required. Letters of instructions will be required only for authorizations issued prior to this date and for general authorizations and operating authorizations for officials in charge of field stations.

In future all letters of authorization will be prepared in the office of the Chief of Bureau on forms approved by the Comptroller of the Treasury, and will be signed directly by the Secretary. Requests for authorizations will be forwarded directly to this office on forms which will be furnished to each office. Special attention is called to the necessity of explicitly stating the nature of the work in submitting the requests. One of the primary objects of having these letters prepared in the office of the Chief of the Bureau is to avoid confusion which has arisen in the past from imperfect statement of the nature of the work, and to connect up statements so made as far as practicable with definite projects.

The adoption of these methods will remove a large amount of paper work, but will make necessary the careful consideration of the fiscal regulations on the part of every one who travels. Instead of inserting in every letter of authorization and repeating each time a considerable portion of the fiscal regulations, letters will be drawn as to require the person traveling to do so in accordance with the fiscal regulations."

21 December, 1912.

FIELD NOTES.

Umatilla.

During the week of December 7 the maximum temperature was 63, minimum 14.

Mr. C. E. Spence, Master of the State Grange and ex-officio member of the Board of Regents of the Oregon Agricultural College, visited the farm on December 5 and looked over the work.

The maximum temperature during the week of December 14 was 42, minimum 20.

An epidemic of hog cholera has broken out on the Project and the settlers are losing a considerable number of hogs. Steps are being taken to secure serum from the East.

Messrs. W. M. Pierce and C. L. Hawley, members of the Board of Regents of the Oregon Agricultural College, visited the farm Tuesday and inspected the work.

Belle Fourche.

During the week of December 14 the maximum temperature was 57, minimum 5.

The work of the week consisted in hauling hay for the horses and making a herbarium case for the office.

San Antonio.

The maximum temperature during the week of December 14 was 55, minimum 39.

The bad weather has continued, so that no field work was done. The men were kept at work around the buildings during the week. The total rainfall for the week amounted to 2.31 inches; it rained almost continuously from the 9th to the 12th. There was practically no surface run-off from the cultivated fields.

Mr. Blair returned on the 12th from a vacation in Kansas.

Vol. II.

21 December, 1912.

FIELD NOTES.

Yuma.

With the arrival of Mr. H. B. Stout to take up the clerical duties of the station, the statements of weekly records from the Yuma Farm, which were discontinued during the absence of clerical assistance, are resumed and will hereafter be submitted regularly.

The maximum temperature during the week ending December 7 was 74, minimum 31; greatest daily range 41. The minimum of 31 on December 4 provided the first killing frost of the season.

The Egyptian cotton picking on the Farm is nearing completion. Three bales of farm cotton have been ginned to date, while six bales have been ginned for settlers. The cotton produced by the farmers is yielding very well, considering lack of attention during the growing season. The yield is from one-half to one bale per acre. The settlers who were unable to do their own picking have experienced some difficulty in securing pickers at 3¢ per pound for seed cotton. Nearly all of the farmers, however, who grew cotton this year have signified their intention to increase their acreage next season. A comparatively large increase for this valley can be secured another year provided a price of 20¢ or more is realized from the present crop.

Mr. R. E. Blair will assume duty at the Yuma Experiment Farm January 1, as assistant to Mr. Peterson. It is proposed to place Mr. Blair in charge of the Yuma Farm when the expected transfer of Mr. Peterson to the Washington office is effected.

28 December, 1912.

SOME SUGAR BEET DATA FROM BELLE FOURCHE,
TRUCKEE-CARSON, AND HUNTLEY.

Mr. Aune has reported the results obtained in tests of six samples of sugar beets grown this year on six different farms on the Belle Fourche Project. The results are given below:

Sam- ple No.	Location of Farm, etc.	Average weight per beet. Ounces.	Sugar Content. per cent.	Purity. per cent.
1	E. M. Adams, Vale, S. Dak. Rather heavy soil, irrigat- ed twice.....	32	15.4	84.5
2	W. J. Ruley, Vale, S. Dak. Gravelly soil, irrigated twice; injured by hail August 17.....	21	15.9	84.6
3	I. W. Blakely, Vale, S. Dak. Sandy soil, irrigated three times.....	32	17.8	87.1
4	W. F. Carr, Vale, S. Dak. Sandy soil, dry land above the ditch.....	32	12.2	71.9
5	Belle Fourche Experiment Farm, gumbo soil, irrigated twice.....	32	12.1	72.0
6	G. W. Morsman, Vale, S. Dak. Sandy soil, irrigated three times.....	56	15.6	84.6

Sugar Beet Data (continued)

Some comparison of the sugar content of beets produced on the Belle Fourche, Truckee-Carson, and Huntley Projects can be obtained from the table below. The Belle Fourche samples are those mentioned above; those from the Truckee-Carson were obtained from three farms near Fallon, and the Huntley samples were produced on Field BVI in the test reported on in the Bulletin of December 21.

	Belle Fourche.	Truckee- Carson.	Huntley.
Number of samples.....	6	5	45
Average sugar content, per cent	14.8	19.5	18.7
Maximum samples.....	17.8	21.8	19.7
Minimum sample.....	12.1	18.0	18.1

FIELD NOTES.

Truckee-Carson.

The maximum temperature during the week of December 14 was 57, minimum 7.

The wire for the transmission line has arrived. Everything is now in readiness for the stringing of the wire and the pump will be started the early part of next week.

3 Redwood drain pipe was laid from the sump to the Government drain ditch.

A set of ten soil cylinders were filled from Plat C-5 to study the effect of gypsum on this adobe soil

28 December, 1912.

FIELD NOTES.

Huntley.

During the first part of the week of December 14 corn husking was completed and the remainder of the time was spent in hauling gravel and putting in water line to the new mess house.

Yield of Corn from Field K.

Rotation Number.	Plat.	Pounds per plat.	Bushels per acre.
16-A	K-V-1	750	42.8
26-B	V-12	732	41.8
32-A	IV-18	509	29.1
Continuous Cropping	IV-23	561	32.0

Delta.

The maximum temperature during the week of December 14 was 64, minimum 22.

A light rain fell on the 14th, starting at 3.00 p.m. and ending at 10.00 p.m.

Labor during the week was devoted to cleaning ditches on all the fields.

San Antonio.

The maximum temperature during the week of December 21 was 72.5, minimum 28.

Until Friday it was too wet for field work. During that period the men were at work making a hay loft and replacing the cowshed and doing other miscellaneous work around the buildings. On Friday the rotation plats and A4 were harrowed. A final lot of Acala was taken to the gin and sold.

A wet norther blew up Saturday.

FIELD NOTES.

Yuma.

During the week of December 14 the leveling of plots A-15-17 has been continued.

Custom cotton ginning has proceeded during the week at intervals. Mr. Townsend constructed a small gin for use in ginning hybrid and other small lots of cotton.

The roofs of the office and house buildings have been repaired and a coat of roofing paint applied to the former.

Mr. Peterson spent the 12th and 13th in the Imperial Valley, familiarizing himself with the Durango cotton situation. It is quite evident that if the price received for this year's Durango cotton is good the entire valley will be placed on a Durango basis during the coming year.

4 January, 1915.

ASSOCIATION AND SOCIETY DUES, FEES, AND EXPENSES.

In requesting authority for employees to attend meetings of associations, we are asked to state whether or not such attendance is on invitation by the association for the purpose of delivering an address or performing other duties in connection with the meeting. It is therefore desirable that in asking for such authority employees furnish this information.

SUGAR BEET YIELDS

On 117 Farms in Utah and Idaho, Compared
With Some Yields Obtained at Truckee-Carson,
Belle Fourche, Scottsbluff, and Huntley, in 1912.

An article appearing in the Christmas issue of the "Deseret News" (Salt Lake City) reports in detail the acreage and yields of sugar beets produced in 1912 on 117 farms in 41 towns, contributory to nine sugar factories in Idaho and Utah. The following table is a summary of this material, together with a statement of the yields obtained in some of the tests at the experiment farms at Belle Fourche, Huntley, and Scottsbluff, and some data obtained on the Truckee-Carson Project. It should be remembered that the yields from Idaho and Utah are from selected farms. The report states that the results are those obtained "by some of the most successful beet-growers".

Sugar Beet Yields (continued)

Locality.	Reporting.				Yield per acre.			
	Number of towns	Number of farms	Total Acreage	Average acreage per farm	(tons)			
					Max.	Min.	Aver.	
<u>UTAH.</u>								
Lehi Factory	4	25	547	22	27.0	12.2	19.6	
Sevier Factory	3	10	100	10	24.4	17.0	19.5	
Lewiston Factory	2	8	376	47	20.0	14.5	17.3	
Ogden Factory	5	15	419	28	20.0	15.0	17.0	
Garland Factory	6	11	186	17	25.0	12.5	17.0	
Logan Factory	6	10	170	17	20.0	15.0	16.5	
<u>IDAHO.</u>								
Sugar City Factory	5	14	377	27	20.0	13.5	16.0	
Burley Factory	9	12	302	25	18.0	9.0	12.5	
Blackfoot Factory	1	12	570	48	12.1	5.5	8.1	
UTAH AND IDAHO, 9 Factories	41	117	3047	26	27.0	5.5	16.3	
Truckee-Carson Project	1	4	29	7	25.3	3.6	16.8	
Belle Fourche Exp. Farm 15 plats, rotation field	1	15 plats	6	-	10.4	4.2	7.6	
Scottsbluff Exp. Farm 14 plats, rotation field	1	14 plats	5.6	-	22.4	12.7	17.1	
Huntley Exp. Farm 14 plats, rotation field	1	14 plats	5.6	-	14.4	6.4	10.3	
Huntley Exp. Farm 45 plats in field BVI	1	45 plats	--	-	17.8	14.1	15.5	

4 January, 1913.

FIELD NOTES.

Umatilla.

The maximum temperature during the week of December 21 was 52.5, minimum 16.

A meeting of the farmers owning hogs affected by the recent outbreak of cholera was called and it was decided to treat about 145 head with serum. The serum was secured through the Experiment Farm from the Oregon Agricultural College. Dr. Hollis, Professor of Veterinary Science at the College, spent two days in the vicinity, administering the serum. The serum is not produced in this State at present, but is secured from Kansas. In case of further outbreaks the settlers may obtain the serum through the Experiment Farm. It is hoped that the coming Legislature may make an appropriation for the purchase of serum.

Before returning Dr. Hollis spoke to a meeting of farmers on the subjects of hog cholera and contagious abortion, of which there is some fear from the importation of Willamette Valley cows.

The maximum temperature during the week of December 28 was 59, minimum 13.

Truckee-Carson.

The maximum temperature during the week of December 21 was 58, minimum 7.

The wire for the transmission line was strung and the motor connected and started. It worked very satisfactorily. The ditch will be started at the sump and dug backward and the drain pipe laid, in order that the water which accumulates in the ditch can be drained off.

The 25° gravity engine distillate now being used in the greenhouse heater is very satisfactory. No soot collects and a high temperature can be raised quickly.

Mr. S. P. Fergusson, of the University of Nevada, visited the station to inspect the meteorograph.

4 January, 1913.

FIELD NOTES.

Yuma.

The maximum temperature for the week of December 21 was 75, minimum 31.

The farm teams and one hired four-horse team were employed during the week on B18-221.

Two more days' labor will complete the season's cotton picking. There still remains about two bales of Egyptian cotton and a large number of hybrids to be ginned.

Farm implements have been purchased during the past month as follows:

Killefer Weed Cutter, from Killifer Mfg. Co., Los Angeles, Cal.

Excelsior Drill, for seeding alfalfa and grass seed, from the Velvetlawn Seeder Co., Springfield, Ohio.

Clipper Grain Cleaner with a set of 20 screens, from A. T. Ferrell & Co., Saginaw, Mich.

Dr. Aaronhson visited the station on the 18th, leaving the same night for Indio and Mecca.

Mr. W. G. Wells left for San Francisco on the 19th to spend the holidays, stopping enroute at Claremont, Cal.

Mr. W. T. Townsend went to Los Angeles on the 21st for a few days.

Belle Fourche.

The maximum temperature during the week of December 21 was 38, minimum 2.

Mr. Aune left the station on the 21st. He will spend a few days in Minnesota, and expects to arrive in Washington about the 3rd or 4th of January.

A new herbarium case has been made and installed in the office.

Delta.

The maximum temperature during the week of December 21 was 57, minimum 30.

The week was devoted to digging potatoes for further yield tests. In the present tests the quality averages are better than the quantity averages.

11 January, 1913.

A NEW WEED EXTERMINATOR.

In "Science" of January 3, Dr. J. C. Arthur, of the Indiana Experiment Station, discusses, under the above title, some results recently obtained in exterminating certain weed pests by the use of orchard-heating oil. The particular weed attacked is the wild garlic, a weed which, because of its highly persistent bulbs and bulblets, can not be exterminated by ordinary cultural methods or by the use of the common chemical sprays. It was found that certain other very tenacious weeds could also be exterminated by the same method. The results obtained suggest possibilities of successfully combating such weeds as wild morning-glory, Bermuda grass, and gumbo weed, which are becoming serious pests in certain localities on the irrigated lands of the West.

The Indiana Station began testing the use of orchard-heating oil in exterminating wild garlic about two years ago. The results are stated in the following quotation which is taken from the article above referred to:

"Remarkable results were obtained from the beginning of the tests. It was found that when the oil was distributed over the field in a fine spray by a sufficiently powerful spraying machine, all growing vegetation was killed, not only above the ground but below ground as well, except the long horizontal rootstocks of such plants as Tecoma radicans (trumpet creeper) and Solanum carolinense (horse nettle), and the extra large roots of such plants as Ipomoea pandurata (wild potato vintres), the latter requiring a correspondingly larger amount of oil. It destroyed the bulbs of the wild garlic, however deep below the surface, and the bulblets at the tops of the stalks as well. The oil appeared to produce no lasting effects upon the soil, and new growth from

11 January, 1913.

A New Weed Exterminator (continued)

seeds already in the soil and from subsequently sowed cereals possessed the usual vigor. The best times and methods for the application are now being tested.

The introduction of this new material for killing weeds is accompanied by a new method of application. Heretofore chemical sprays have been differential and intended to kill only the weeds while leaving the crops essentially unharmed. Orchard heating oil acts as a complete spray, killing all vegetation, like plowing or fire, only more effectively than these, as it follows the stems and roots well into the ground."

FIELD NOTES.

Yuma.

The maximum temperature for the week of December 28 was 70, minimum 27; greatest daily range 47.

The men and teams were kept busy leveling fields B18 to 21, inclusive. Cornstalks from plots C24, 25 and 26 were cut and hauled to the sandy stretch of road east of the farm.

Mr. R. E. Blair arrived on the 27th from San Antonio, and Mr. W. E. Townsend returned from Los Angeles on the 28th.

Mr. W. A. Peterson expects to leave for Washington about January 10.

Truckee-Carson.

The maximum temperature during the week of December 28 was 52, minimum 1.

Work was continued on the drainage system.

Field C was double disked and is now ready for the throwing up of levees.

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11 January, 1913.

FIELD NOTES.

Delta.

The maximum temperature during the week of December 28 was 57, minimum 16. Thursday morning's record of 16 is the coldest for the season.

The work of the week consisted in digging potatoes for further yield tests.

San Antonio.

With the exception of Monday forenoon, plowing was continued throughout the week of January 4. B3 was plowed and the remainder of the week was spent in plowing D3.

Two and one-half acres of oats were planted on the south end of C5 on January 2. Also about one-half acre of Canada field peas was planted in the same field.

The plat of Japanese sugar cane on D3 was drawn in and gave a yield of 13.08 tons per acre.

Dr. Aaron Aaronsohn and Mr. G. A. Schattenberg visited the farm on December 30.

PERSONAL.

Messrs. Aune, Knorr, and Hansen have reported at the Washington office for their winter's work in making reports and forming plans for next season's operations.

Journal of Management Education 30(6)p. 789-804

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1. *Pharmaceutical industry* – The pharmaceutical industry is a major player in the healthcare sector, responsible for the development, production, and distribution of drugs. It is a highly regulated industry with significant research and development costs. The industry is often criticized for high prices and lack of transparency.

Journal of Management Studies, 19(1), 67-80.

11 January, 1913.

WEATHER CONDITIONS.

TRUCKEE-CARSON EXPERIMENT FARM.

YEAR 1912.

MONTH	Temperature.			Precipitation.			Evapor- ation. (inches)	Total wind movement. (miles)	S k y.		
	Max.	Min.	Mean	Total. (inches)	Greatest 24 hours. Total Date				Clear	Partly Cloudy	Cloud
Jan.	70	-7	34.2	.13	.08 11th		1.24	2,407	13	6	12
Feb.	64	8	37.9	.06	.05 23rd		2.13	2,449	14	7	8
Mar.	70	9	40.9	.37	.17 10th		4.15	4,329	13	7	11
Apr.	76	22	47.2	.87	.20 26th		5.66	4,414	16	5	9
May	86	29	56.4	.43	.25 9th		7.40	3,930	22	5	4
June	96	36	65.1	.22	.14 10th		10.39	3,846	22	4	4
July	100	38	69.5	.13	.08 19th		9.64	2,772	23	3	5
Aug.	97	39	68.3	.18	.18 2nd		9.03	2,746	27	2	2
Sept.	90	29	58.2	.43	.43 3rd		6.07	2,617	22	3	5
Oct.	78	19	46.9	1.10	.73 1st		3.43	2,767	18	5	8
Nov.	72	13	40.6	.08	.03 4&10		1.97	2,496	18	6	6
Dec.	58	1	30.7	T			.78	2,555	18	9	4
Total	957	236	595.9	4.00			61.89	37,323	226	62	78
and Mean	79.8	19.7	49.7				5.16	3,110			

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18 January, 1913.

THE PUBLICATION OF SHORT PAPERS.

The Bureau has recently modified the Circular series in such a way as to provide a means for the publication of short papers prepared by Bureau employees. The series is published under the name of "Miscellaneous Papers". Each issue will contain about 32 printed pages and include four or more papers, of which none may exceed twelve printed pages. The first issue of the series appeared on January 4, as B. P. I. Circular No. 109..

One of the most important features of the series is that papers accepted for publication are printed and copies mailed within not to exceed three weeks after acceptance. Another feature is that reprints of any of the papers can be obtained for supplying mailing lists in the section to which the paper is intended to apply. In this way quick publication, prompt distribution, and wide circulation are assured.

The papers published in this series may be illustrated by half-tone reproductions, zinc etchings, etc., provided the blocks are submitted with the author's manuscript.

PROGRESS REPORTS.

It is planned to publish the progress reports of the field stations of this office in the Bureau circular series. These will be published separately for each farm and copies will be sent to the mailing list for each project. The titles of these reports will be uniform for all the farms. The title tentatively decided upon is "The Work of the _____ Experiment Farm for 1912". The outline given on the following page includes suggestions as to the principal general points to be covered.

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18 January, 1913.

Progress Reports (continued)

FARM REPORTS, 1912.

(Not to exceed 10 printed pages each)

Suggestive Outline.

- a Footnote showing fiscal relationships.
- b Brief introductory statement.
- 1 Map of farm, showing location of crop experiments and principal irrigation laterals.
- 2 Photograph of farm buildings if available.
- 3 Photographs of crops or fields (2 or 3 in each report).
- 4 Meteorological summaries showing—
 - a Average to date, by months.
 - 1 Precipitation.
 - 2 Evaporation.
 - 3 Wind.
 - 4 Max. and Min. temperatures.
 - 5 Dates of last spring and first fall frosts
 - b Same for 1912.
- 5 Summary statement of crop acreage and yields on the project in 1912 (to be obtained from U.S.R.S.)
- 6 Summary statement of experiments in progress, segregating those conducted by other offices. In the latter case only a brief paragraph should be given showing the acreage used and the nature of the work carried on.
- 7 Brief notes of progress. These should relate to facts discovered through the 1912 experiments or observed by the experiment farm officers. The following are suggestive points to be covered:
 - a Crops or crop varieties which have been found specially desirable.
 - b Cropping methods which include new and desirable practices.
 - c Orchard tests — varieties, methods, etc.
 - d Garden vegetables — varieties, methods, etc.
 - e Trees and ornamentals — varieties, methods, etc.
 - f Farm equipment.
 - g Farm buildings.
 - h New irrigation structures.
 - i Irrigation methods.
 - j Exterminating animal pests
 - k Frost prevention.
 - l Storage of crop products.

The data supporting each statement should be briefly given and the application of the facts to conditions on the project should be clearly stated.

18 January, 1913.

ERADICATION OF SOLUBLE SALTS FROM
BLACK ALKALI SOIL.

Quite a large part of the Truckee-Carson Experiment Farm contains soil unsuited to the raising of crops. This soil is usually "adobe" containing black alkali with other salts. In July, 1912, an experiment was begun to find out if this kind of soil could be reclaimed by one of three methods — (1) simple drainage without other treatment, (2) by the application of gypsum and drainage, and (3) by the application of quick lime (CaO) and drainage. To carry out these experiments a number of cylinders 8 inches in diameter and 20 inches high were made. A piece of bad adobe land was selected where it had never been possible to get seeds to germinate and the cylinders were driven down as close together as practicable until they were filled to within 4 inches of the top. The cylinders were dug out and placed on perforated plates over shallow pans so that good drainage was provided for all cylinders. They were placed in the greenhouse and treated as follows:

Set No. 1, containing four cylinders, was not treated, except by adding an excess of water from time to time to see if the salts could be washed out with the soil in its natural state.

Set No. 2 was treated with gypsum, 3 ounces to each cylinder, and an excess of water added as with Set No. 1.

Set No. 3 was treated with quick lime, 2 ounces to each cylinder, and otherwise treated as Nos. 1 and 2.

Set No. 4 was untreated and no excess of water was added at any time.

Water was added to all cylinders on the following dates: July 24, August 21, September 17, and November 7. The effect of the various treatments was immediately noticeable. From 4 to 7 days elapsed each time before water would leach through Set No. 1. The effect of the gypsum was such that the water always came through within 24 hours and usually in much less time. Its effect was permanent, the water coming through as quickly after the last application of water as at the first. The effect of the lime was very marked with the first two applications of water, which came through as quickly as it did in Set No. 2, but the effect was not permanent. During the last two applications the water drained out much less rapidly.

18 January, 1913.

Eradication of Soluble Salts
From Black Alkali Soil (continued).

The soil in the cylinders contained soluble salts as follows: Sodium carbonate .028%; sodium bicarbonate .176%; sodium chlorid .043%; sodium sulfate 1.597%.

About September 30, when the soil had become sufficiently dry after the third washing, 10 alfalfa seeds were planted in each cylinder. The growth and condition of the plants on January 9 was as follows:

Set No.	Chemical added.	Number of Cylinders	Condition of plants	Number of plants	Average height of plants (inches)
1	None	4	Unhealthy	10	.50
2	Gypsum	4	Healthy	26	1.63
3	Lime	4	Fair to health	12	.73
4	None	1	No plants	0	.00

The growth of the plants, as well as the percolation of the water, indicates that the gypsum has a highly beneficial effect and that the lime has only a slightly beneficial effect.

Mr. W. A. Peterson, formerly Superintendent of the Yuma Experiment Farm, has been appointed Superintendent of the Mandan (N. Dak.) field station, which is operated by the office of Dry Land Agriculture. The transfer took effect January 1, 1913. Mr. Peterson will be in Washington for some weeks before actively taking charge of the work at Mandan. Mr. R. E. Blair becomes Superintendent at Yuma.

1. 1990. *Journal of the American Water Resources Association*, 26: 101-110.

18 January, 1913.

FIELD NOTES.

Yuma.

The maximum temperature during the week of January 4 was 73, minimum 27; greatest daily range 46.

Leveling was continued on the field B series. The men were busy during the greater part of the week chopping and burning cotton stalks and clearing corn and Milo stalks from fields.

The ginning of the Egyptian cotton was completed, there being 21 bales grown in the Valley during the season of 1912.

On Saturday a very severe sand storm coming with a gale of wind at 30 miles an hour was experienced, making work in the fields nearly impossible.

Truckee-Carson.

The maximum temperature during the week of January 4 was 64, minimum 11.

Sunday, January 5, the minimum temperature outside was -10. By the use of a 34° gravity distillate in the greenhouse furnace the temperature of the water ranged from 150° to 160° with a minimum temperature in the greenhouse of 45°.

The condition of the onion and potato market remains unsatisfactory and from the present outlook the farmers may not be able to dispose of this produce at all.

The work on the ditch for the drain pipe is progressing slowly on account of the condition of the soil. After the first surface two feet are removed a hard, cement-like gravelly soil is found, and below this a layer of wet adobe. About 400 feet of tile have been laid and it is with difficulty that the tile can be kept to the proper grade because of settling into the muck. Each 350 feet a manhole is being placed, the base of which is about two feet lower than the under side of the tile. These manholes are to collect the sand from the drainage water and afford a place from which the tile can be cleaned in case of a stoppage.

18 January, 1913.

FIELD NOTES.

Umatilla.

The maximum temperature during the week of January 4 was 66, minimum 8; precipitation 0.23.

Mr. Allen left the station on Monday to act as instructor in the Short Course at the Oregon Agricultural College at Corvallis.

A creamery is to be established in the immediate future at Hermiston by outside capital. There are about 250 cows on the Project at present to supply the creamery and it is hoped to increase this number to a thousand. The creamery will be an especial help to the farmers in that it will give them a constant income, something they are in need of.

Delta.

The maximum temperature for the week ending January 4 was 62, minimum 23.

Saturday a heavy northwester coming from the coast was felt perceptibly at the farm.

Fires were started on some of the reclaimed tule lands by duck hunters and the barley stubble and peat lands caught fire in several places on the cultivated lands across the canals. These fires, fanned by the heavy wind, burned over considerable ground and in some places are still burning.

The work of the week consisted in digging potatoes for quantity yield tests.

During the week of January 11 the maximum temperature was 49, minimum 18.5. This section of the country is undergoing the coldest weather experienced for the past 15 years. This weather has stopped all further digging for a few days, as potatoes are stored in and are slightly frozen. It is therefore considered better to leave them undug for the present. The effect of the cold weather all over the country—Colorado, Nevada, Oregon, and southern California especially, has had a tendency to raise the present low price for potatoes and it is now on the raise.

18 January, 1913.

FIELD NOTES.

San Antonio.

The maximum temperature for the week ending January 11 was 72, minimum 20; rainfall 0.22 inch.

Plowing was continued during the week when it was not too wet. D3 was completed and the plowing of A3-2 was begun. A small garden was put in on D3, which included quite a collection of winter vegetables. Re-graveling of the driveway was partially completed.

Mr. Hastings was at Greenville, Texas, the latter part of the week, attending the Texas Corn Growers' Association meeting. He also read a paper on the comparative yields of grain sorghums and corn. Considerable interest is being shown by the farmers of central west Texas in grain sorghums, and the area devoted to this crop is being rapidly increased.

FALL IRRIGATION AT SCOTTSBLUFF.

The experiment to determine the value of fall irrigation was continued at Scottsbluff during 1912. The fall irrigated field was thoroughly irrigated September 29, 1911. Both fields concerned were plowed October 16, 1911, and allowed to remain in the rough over winter. The two fields were irrigated the same in 1912 and all other treatment was uniform. The test was conducted on triplicate plats with all the crops used except potatoes and corn; with these the test was conducted in duplicate. All the results reported in the following table are averages, the number of plat yields averaged in each case being given in the second column;

Crop.	Number of plats averaged.	Yield per acre.		
		Check.	Fall Irrigated.	Difference.*
Wheat	3	38.4 bus.	41.6 bus.	3.2 bus.
Oats	3	81.8 "	94.6 "	12.8 "
Barley	3	35.0 "	42.8 "	7.8 "
Sugar Beets	3	12.6 tons	13.3 tons	0.7 ton
Potatoes	2	120.3 bus	122.1 bus.	1.9 bus.
Corn	2	48.8 "	52.2 "	3.4 "

* In favor of fall irrigation.

25 January, 1913.

SCOTTSBLUFF POTATO EXPERIMENTS.

During the season of 1912 some experiments were conducted at the Scottsbluff Experiment Farm to determine the effects of different methods of irrigation and of different preceding crops on the yields of potatoes and on the potato disease, Rhizootonia. The table given below states the yields obtained and indicates the irrigation methods used. Two general methods of preparing the land for irrigation were followed —

A.— Shallow ditching and cultivating. In this method the cultivation was approximately 5 to 6 inches deep and the ditches were made about 5 to 6 inches deep. Five different methods of irrigating were followed in connection with the shallow ditching. In the first (A-1) the water was applied in every other row in all the irrigations, the same rows being used each time; in the second (A-2) the odd numbered rows were used in the first irrigation, the even numbered rows in the second irrigation, and so on. Method A-3 was ordinary irrigation; methods A-4 and A-5 were the same as A-2 in the methods of applying water, but different in the time of application, as shown in the table.

B.— Deep ditching and cultivating. In this method the cultivation was about 8 to 9 inches deep and the ditches were made about 8 to 9 inches deep. The irrigation methods were the same as those under A.

The tests were conducted on three fields, of which one produced alfalfa in 1910 and 1911, one was in oats, and one summer fallowed in 1911.

The plats each contained 5 rows, 132 feet long, the plat area being 1/20 acre. A border row was grown on each side of each plat. These rows were discarded at harvest time. Treatments 1, 2, 4, and 5 were duplicated on each field; treatment 3 was triplicated on each field.

Rain was unusually abundant during the growing season, so that the different treatments had less effect than would be expected in normal years. Two irrigations were given to 1, 3, and 4, and three irrigations to 2 and 5.

25 January, 1913.

The plants grown under the different treatments showed no essential differences with respect to Rhizoctonia; but it was noted that the potatoes on the alfalfa land were somewhat more affected with "blackleg", a bacterial disease of potatoes. This was not sufficient, however, to prevent the alfalfa land from producing the highest yields. The fact that all the yields are low is probably due to the prevalence of disease and to the use of Early Ohio potatoes, a low yielding variety as was shown in the variety tests.

Yields obtained in Potato Irrigation Experiment,
Scottsbluff, 1912.

1912 Treatment.	Number of plats averaged	Yield of Marketable Tubers, Bushels per acre.				
		Preceding Crop.			Average	
		Alfalfa	Oats	Fallow	Number of plats	Yi
<u>A.- Shallow Ditching and Cultivating; irrigated</u>						
1.- In every other row, all irrigations.....	2	192.6	115.9	149.8	6	152
2.- In every other row, alternately.....	2	207.8	102.5	168.6	6	159
3.- In every row, ordinary way, beginning when plants bloom.....	3	186.4	119.8*	155.1*	11	153
4.- In every other row, alternately, irrigat- ing only when plants suffer for water.....	2	195.1	115.9	138.9	6	149
5.- In every other row, alternately, irrigat- ing so as to supply abundant moisture continuously.....	2	200.4	124.3	146.8	6	157
Averages.....		196.4	115.7	151.8	35	154
<u>B.- Deep Ditching and Cultivating; irrigated</u>						
1.- Same as A-1.....	2	181.8	107.0	132.6	6	142
2.- Same as A-2.....	2	190.9	110.8	175.5	6	159
3.- Same as A-3.....	3	182.8	107.8*	160.1*	11	150
4.- Same as A-4.....	2	178.8	110.4	125.8	6	138
5.- Same as A-5.....	2	169.1	119.4	155.6	6	148
Averages.....		180.7	111.1	151.1	35	147
Averages of A and B.....		188.5	113.4	151.4	70	151

* Average of 4 plats.

25 January, 1913.

Scottsbluff Potato Experiments (continued)

From the figures reported in the table it is seen that the preceding crop had a much greater effect on the yield than did the method of irrigation. Alfalfa land produced, on the average, 37.1 bushels per acre more than the summer fallowed land and 75.1 bushels per acre more than the land which was previously in oats. The yield of culls — not included in the table — was considerably higher on the land previously in oats than on either of the other fields. The culls included all the tubers which would pass through a 1-5/4 inch screen.

FIELD NOTES.

Umatilla.

The maximum temperature during the week of January 11 was 44, minimum 4; precipitation 0.28 inch.

The coldest night of the winter occurred on Sunday, when the temperature fell to 4°. The first snow, a light flurry, came Tuesday. The winter has been extremely open, and unless there is cold weather in the next two weeks a good peach crop will be practically assured.

The maximum temperature during the week of January 18 was 39, minimum 0. Snow on the ground during four days of the week prevented the starting of field work which had been planned.

Truckee-Carson.

The maximum temperature during the week of January 11 was 46, minimum -10.

Work was continued on the drainage system.

25 January, 1913.

FIELD NOTES.

Belle Fourche.

The maximum temperature during the week of January 11 was 38, minimum -33.

During the week the ice on the pond on Deadman creek was cut and approximately 30 tons stored in the station icehouse.

The maximum temperature during the week of January 18 was 43, minimum -27. The thermometer registered 10 below zero four nights out of the seven, with high winds practically all the time.

Yuma.

The maximum temperature during the week ending January 11 was 73, minimum 16. On the night of the 15th a temperature of 16 above was experienced which has done quite extensive damage to the dates. Figs seem to be uninjured. This cold period was followed by a temperature each night during the week below freezing.

Plats C20-26 and D24-25 were plowed. Work has been commenced on the raising of the levees and cleaning the main ditches on the farm. The fall seeded alfalfa and also the garden plat A12-2 were given a light irrigation.

Mr. Townsend left Tuesday for Sacaton, he having completed the ginning of the Egyptian cotton at this station.

Mr. W. A. Peterson left for the Washington office on the 10th.

1 February, 1913.

CIVIL SERVICE.

The correspondence regarding the appointment of temporary assistants at field stations, copies of which are given herewith, is practically self-explanatory. Copies of the "Regulations Governing Appointments and Other Changes Affecting the Personnel in the Field Service of the Department of Agriculture", together with a sample blank used in connection with the appointment of temporary assistants, referred to in this correspondence, has been sent to the various experiment farms of this division.

(COPY)

January 14, 1913.

Hon. James Wilson,
Secretary of Agriculture.

Sir:

Referring to the letter from the Civil Service Commission relative to the field officials of this Bureau making temporary appointments to field positions by dealing directly with the district secretaries of the Commission, I inform you that steps will be taken at once to furnish the district secretaries with lists of the field officials in this Bureau stationed in the respective districts, with a view to having the field officials furnished lists of mechanics, etc., eligible for temporary service and available on short notice, which action is requested in the letter of the Commission. Instructions will also be issued to the Bureau officials in the field, that will enable them to carry out the provisions with respect to temporary appointments under the district system.

Very respectfully,
(Signed) B. T. GALLOWAY,
Chief of Bureau.

1 February, 1913.

(COPY)

November 15, 1912.

The Honorable,

The Secretary of Agriculture.

Sir:

The Commission has the honor to acknowledge the receipt of the Department's letter of November 12, with reference to permitting field officers of the Bureau of Plant Industry to deal directly with the district secretaries, as is done by the other Bureaus of the Department in matters pertaining to appointments under the district system. The statement is noted that the officers in charge of field stations in the Bureau of Plant Industry have been authorized to deal directly with the district secretaries in cases of temporary appointments, but in making appointments to permanent positions it has been deemed best to continue the practice of making selections at the headquarters of the Bureau in Washington, D. C.

It is also noted that it will be necessary to employ mechanics for short periods from time to time at all field stations of the Bureau; that in most cases the mechanic is required to furnish the material used in the repair work, which consequently makes somewhat of a difficult situation to handle, but that, if practicable, it is desired that the district secretary furnish each farm superintendent with a list of local eligibles who could be called upon at short notice; and that the Bureau will have no objections whatever to using the lists wherever practicable.

The Commission desires to express its appreciation of the Department's action in this matter and hopes that in the near future it will see its way clear to authorize field officers of the Bureau of Plant Industry to deal directly with the district secretaries in matters pertaining to permanent appointments as well as to temporary appointments, as it is believed that all matters pertaining to appointments to positions under the district system can be more promptly and efficiently handled between the field officers and the district secretaries, especially where the appointments are made at places far distant from Washington.

In order that the district secretaries may furnish lists of eligibles available for immediate temporary appointments to the various farm superintendents or other proper officials in the Bureau of Plant Industry, the Commission suggests that the Department furnish the various district secretaries with complete lists of such officials and also issue to them such instructions as will enable them to carry out the provisions with respect to temporary appointments coming under the district system. In cases where the field official

1 February, 1913.

is located at a place where there is a local civil service secretary the list, of course, will be furnished the local secretary when temporary assistance is needed. In the absence of such advice or if the local official is not directly furnished a list of eligibles and it becomes necessary to make a temporary appointment, he is authorized under the regulations to appoint a person outside of the register for a period not to exceed three months if for job work, or for a period not to exceed thirty days under section 1 of Rule VIII if the position is to be filled permanently in some manner. He should, however, make a prompt report of the temporary appointment by letter to the district secretary, giving a full statement of the reasons for the temporary appointment, its duration, and all the pertinent facts connected therewith.

By direction of the Commission:

Very respectfully,

(Signed) JOHN C. BLACK,
President.

PERSONAL.

Mr. Townsend arrived in Washington January 28.

Mr. Letteer left Washington for his official headquarters on the San Antonio Experiment Farm on January 15.

Mr. Headley leaves Washington for the Truckee-Carson Experiment Farm tonight.

Mr. Knorr will leave Washington for his station on the Scottsbluff Experiment Farm tomorrow morning, stopping en route at Lincoln, Nebraska, for the purpose of conferring with officials of the Nebraska State Experiment Station.

COMPARATIVE COST OF PRODUCING CROPS ON IRRIGATED AND NON-IRRIGATED LANDS.

The following table, taken from the "Crop Reporter" for November, 1912, gives the results of "an investigation of the approximate average operating costs of producing crops in 1911 on irrigated and non-irrigated lands in Wyoming and western Nebraska (non-irrigated alfalfa in south central Nebraska)***** made by an agent of the Bureau of Statistics in 1911-1912". The yields of wheat, oats, and

1 February, 1913.

potatoes are given in bushels per acre; those of alfalfa are given in tons per acre. The cost of preparing ground, planting, and seed for alfalfa "is based on the expense of obtaining a stand, divided by the average life of a stand, i. e. \$7.50 divided by 10 for irrigated, and \$6.00 divided by 11 for non-irrigated lands". The depreciation is figured on the value of the farm implements and work stock:

	Wheat.		Oats.		Alfalfa		Potatoes.	
	Irrigated	Non-irrigated	Irrigated	Non-irrigated	Irrigated	Non-irrigated	Irrigated	Non-irrigated
Number of farms reporting.....	73	73	104	104	119	119	7	7
Total acres in specified crops.....	1533	3957	2945	9280	9313	7356	37.5	56
Average yield per acre.....	27.0	12.6	49.5	22.7	2.59	2.42	124	44.2
Preparing ground and planting.....	2.914	1.820	2.025	1.660			6.257	4.330
Seed.....	1.364	0.724	1.469	0.482	.75	.60	10.693	6.528
Cultivating.....	—	—	—	—	—	—	1.813	2.666
Irrigating.....	0.640	—	0.673	—	0.607	—	1.093	—
Harvesting.....	1.301	0.955	1.262	0.872	—	—	—	—
Harvesting and preparing for market.....	—	—	—	—	4.925	3.004	10.107	3.553
Threshing and preparing for market.....	1.434	0.747	1.594	0.682	—	—	—	—
Fertilizers (produced on farm).....	0.083	—	0.048	—	0.111	—	1.067	—
Depreciation.....	0.226	0.092	0.226	0.071	0.182	0.119	0.293	.062
Total operating cost per acre.....	\$ 7.96	4.34	8.10	3.77	6.57	3.72	31.30	17.34

1 February, 1913.

FIELD NOTES.

Truckee-Garson.

The principal activities on the farm during the week ending January 18 were in connection with the work on the drainage system.

The maximum temperature during this week was 51, minimum 15. Precipitation .14 inch.

San Antonio.

For the week ending January 25, the maximum temperature was 74 and the minimum 36; the greatest daily range of temperature being 33.

Much of the week was cloudy and rainy.

Total precipitation amounted to .35 inch.

Owing to unfavorable weather conditions during this winter, the farm work in the San Antonio region has been greatly delayed.

During the week beginning January 1 several trees were received and planted on the Experiment Farm.

Plowing was continued on A3-2 and C4 when weather conditions permitted, and some miscellaneous work was done.

Yuma.

During the week ending January 18 some plowing was done and the repairing of irrigation ditches was continued.

Messrs. Argyle McLachlan and E. W. Hudson spent January 12 and 13 at the farm.

Maximum temperature for the week beginning January 12 was 69:- minimum 26:- greatest daily range 36.

Belle Fourche.

The maximum temperature for the week ending January 25 was 41:- minimum -17:- precipitation T.

FIELD NOTES.

Umatilla.

The maximum temperature during the week of February 1 was 54, minimum 11; no precipitation.

The last sage brush windbreak on the farm was burned. Rye will be left standing at intervals through the garden to break the force of the wind.

During the week of January 25 Mr. Dean assisted in the formation of a Farmers' Educational Club in the Columbia District on the north side of the project. It is proposed to hold semi-monthly meetings to discuss the problems of the settlers and end the program with a social gathering. Mr. Dean's subject for the evening was "Dairying".

Truckee-Carson.

During the week of January 25 the maximum temperature was 46, minimum 4.

Work was continued on the drainage system, the corral was cleaned and the manure removed to the garden.

Radishes were taken from the bed in the greenhouse for table use.

Delta.

The maximum temperature for the week of January 25 was 62, minimum 29. Three heavy frosts occurred during the week.

The slight jump in the price of potatoes caused all the island farmers to rush the digging. The weather now moderating somewhat and the demand for potatoes being less than the supply, the price has again dropped to 45 cents per sack of 118 lbs.

8 February, 1913.

FIELD NOTES.

Yuma.

During the week of January 18 the maximum temperature was 70, minimum 20; greatest range 39.

During the entire week men and teams were employed repairing the main ditches on the farm and continuing the leveling of Field B series. Plats B25 to 28 were plowed. Material was sawed and prepared for the construction of irrigation boxes for the newly leveled land.

San Antonio.

The maximum temperature for the week ending February 1 was 75, minimum 29.5; greatest daily range 38.5. The total precipitation was 0.32 inch.

Pruning of the orchard on A1 was begun. Plats A5-14 and 18 were manured and A5-18 was subsoiled on the 19th. All the rotation fields were gone over with the orchard cultivator, as the ground was becoming so compact that the spiketooth harrow could not be used.

Six lots of peach seeds, treated differently, were planted north of the barn to be used later for stock. As considerable difficulty is experienced in getting peach seeds to germinate here, especially when planted late, a part of the seed was frozen in a cake of ice to determine if this treatment would secure a higher percentage of germination. The following peach stock is to be tested here, the stock to be worked this coming season: Amygdalus davidiana, Mexican seedling stock, stock used by Ramsey, and stock used by Adams, and the South Chinese type.

DYNAMOMETER TESTS AT SAN ANTONIO.

In his report for the week ending February 1, Mr. Hastings makes the following report on dynamometer tests conducted at the station:

The dynamometer sent here from the Belle Fourche Station has been tested. The soil was in exceptionally fine moisture condition. The greater part of the plowing is ordinarily done here under conditions much less favorable; consequently these figures are much lower than should be expected under ordinary conditions. The dynamometer was attached to a trace and three animals were attached to the riding and two to the walking plow. The readings were multiplied by six in the one instance and four in the other. Only the total draft in pounds is given. The formula for computing the horsepower was obtained from Davidson's "Farm Machinery and Farm Motors", page 11. The following table gives the results of the test:

Plow	Land	Furrow.		No. of Readings	Draft	
		Width, inches	Depth, inches		Lbs.	H. P.
Disk	Fallow	11 to 12	5 to 5½	3	530	3.65
"	"	11 to 11½	7	2	660	4.54
"	"	11 to 12	7½ to 8	3	754	5.19
"	Sorghum stubble	10½ to 11	7½	3	724	4.98
Riding moldboard	Fallow	14 to 15	7 to 7½	3	816	5.61
"	Sorghum stubble	12	7½	3	696	4.79
"	"	13 to 14	7 to 8	3	820	5.64
Walking	Fallow	11	7½ to 8	2	580	3.99
"	"	11	7	2	534	3.67
"	Sorghum stubble	11 to 11½	7	3	635	4.39

Rate team traveled per hour: 2.58 miles.

A test was also made with the subsoil plow and a series of readings gave the total draft of 488 pounds and horsepower 2.6, subsoiling to a depth of 12 inches. The plow moved at the rate of two miles per hour and followed a plow cutting a furrow from 6 to 7" deep.

15 February, 1913.

FIRE IN BUREAU PROPERTY ROOM.

Fire in the Bureau property room on the morning of the 8th totally destroyed the stock and seriously crippled the supply facilities of the entire Bureau.

This will cause considerable delay in filling many requisitions and the indefinite postponement of others. Until the property room is rehabilitated, it will be necessary to secure all supplies on outside purchase orders. It will not be practicable to draw such orders for small quantities of supplies, and we have neither the storage space nor the funds to buy in larger quantities and hold the surplus for future demand.

It is desirable, therefore, that farm superintendents purchase their supplies locally as far as is feasible until further notice. It is possible that a few requests may be filled from the very limited stock maintained in this office, and this will be done when practicable. Purchase orders will, of course, be drawn upon request, if the Government contracts permit the purchase of the material desired, provided the request is for goods in sufficient quantity to justify a purchase order, and provided further that the field station requesting the purchase order has available funds sufficient for the purchase.

PERSONAL.

Mr. Aune will leave Washington on the 17th to resume his work at the Belle Fourche Farm.

15 February, 1913.

SMOKING PROHIBITED.

General Order No. 172, dated February 10, 1913, reads as follows:

Attention is called to previous orders of the Department in regard to the prohibition of smoking in any buildings of the Department, and the accumulation of waste paper and refuse, and the storing of inflammable materials in the buildings.*

Directions are hereby given that there shall be no smoking whatsoever by any employees or other persons, in any building occupied by the Department, at all times. Any violation of this order should be reported at once to the Secretary's Office, and may be considered sufficient cause for dismissal.

All stock and supplies of alcohol, ether, and other inflammable supplies, other than in small laboratory lots, should be removed from and stored outside of all buildings occupied by the Department, except those specially constructed for that purpose.

All rooms and all offices, store rooms, etc., in the Department buildings should be left unlocked so the watchmen can readily secure access to the rooms during the night. In the event that it is absolutely necessary to lock certain rooms, special permits should be secured from the Chief Clerk of the Department for the purpose, and the watchmen should be supplied with keys to specially locked rooms, with personal instructions as to the quickest method of securing access thereto.

(Signed) JAMES WILSON,
Secretary.

* General Order No. 5,
Rules and Regulations of
December 19, 1901, Special
Order of May 23, 1911.

15 February, 1913.

FIELD NOTES.

Delta.

The maximum temperature during the week of February 1 was 66, minimum 27.5.

All of the fertilized plats on Field F have now been dug. On Field G a one-quarter acre plat (66' x 165') was laid off on each of the 2 acre lands at both ends, giving $1\frac{1}{2}$ acres for quantity tests. The borders were dug first and then the plats, the rows and hills being first counted. Field I is now being dug and the sixteen $\frac{1}{2}$ acre lands should be completed by the middle of the coming week. This will finish the digging.

Dr. Thomas Forsyth Hunt, the new Dean of the Agricultural Department, University of California, accompanied by Mr. B. Madison, Agronomist from the same department, and Mr. Carson C. Cook, Manager of the Rindge Land & Navigation Co., and President of the Delta Association, were at the farm Saturday.

Truckee-Carson.

The maximum temperature during the week of February 1 was 53, minimum 12.

Work was continued on the drainage system.

A number of the ranchers of the project visited the farm to inspect the drainage system. Mr. J. Johnson, owner of a large tract of land about a half mile west of the Experiment Farm, intends installing a drainage system as near as possible a duplicate of the one on the Farm.

The Fallon Chamber of Commerce has placed a bill before the State Legislature for an appropriation of \$1,000 for the Truckee-Carson Fair Association. If Churchill County can be set aside as a separate agricultural district, the county commissioners have agreed to appropriate \$1,500 for the Fair.

FIELD NOTES.

San Antonio.

The maximum temperature during the week of February 8 was 65, minimum 28; greatest daily range 30. The latter part of the week was cloudy and wet and very disagreeable. The total precipitation was .33".

Plowing on C3 was continued when weather conditions were favorable.

Pruning the orchards on A1 and B3 was completed. Two men were at work the greater part of the week grubbing the edge of field AB8.

COMPARATIVE WEATHER RECORDS FOR JANUARY.

	Truckee- Carson.	Umatilla.
Mean temperature	28.20	30.2
Maximum "	64.00	54.00
Minimum "	-10.00	0.00
Rainfall	.25	1.69
Average wind velocity	4.14	3.108
Days clear	16	7
Days partly cloudy	7	10
Days cloudy	8	18

22 February, 1913.

PASTURE GRASS TESTS.

In view of the growing interest in dairy farming on the irrigated lands and the expected demands for information relative to practicable methods of incorporating pasture crops in irrigated rotations, some pasture grass tests will be inaugurated during the coming spring at the Scottsbluff, Huntley, and Belle Fourche Farms. Eleven grasses and three legumes will be tested separately and in various combinations. The tests will be uniform at the three farms. It is to be hoped that during the first year sufficient information will be secured regarding the behavior of the different grasses and mixtures to enable us to start some rotation tests, including pastures, in the spring of 1914.

FIELD NOTES.

Delta.

During the week of February 8 the maximum temperature was 65.5, minimum 26.5.

Potato digging on all fields was finished on the 5th.

Truckee-Carson.

The maximum temperature during the week of February was 57, minimum 10.

Several hundred ornamentals and fruit trees were received from the S.P.I. Gardens at Chico and from the Department at Washington.

Work was continued on the drainage system.

FIELD NOTES.

Yuma.

The maximum temperature during the week of February 8 was 76, minimum 29; greatest daily range 41.

The alfalfa plats were renovated in preparation for irrigation. Lands to be planted to garden, melons, small grains, and newly leveled lands were irrigated in preparation for planting. Leveling was continued on field B series, fields 23 and 24 being nearly completed.

A quantity of peach seed secured from the San Antonio station from the Mexican seedling peach orchard was planted in nursery rows in A-13-2, to produce peach stock for propagating; also various other seeds of trees and ornamental shrubs were planted in nursery rows on A-13-2.

A quantity of Canna tubers were dug from the nursery planting of last season, there being enough on hand to distribute among the settlers who are interested in ornamental plantings.

During the latter part of the week a sequence of small showers, totaling 0.34 inch, made work in the fields impossible and the time was devoted to sawing cordwood for summer use.

Arrangements have been made whereby runs of water in all ditches will be made at intervals of seven days. It is hoped that by this arrangement the farmers may be induced to make better use of water without using such large quantities. This system will be practiced for several weeks as a trial and if found to be satisfactory will become a regular practice.

22 February, 1913.

LABOR REPORTS.

The results from our present methods of handling the labor records have not been wholly satisfactory. We have accumulated many figures, but cases in which we have complete cost data for any one crop are rather too rare. We should be able from this data to ascertain the comparative labor cost of different farm operations, of the production of different crops, and the distribution of labor to the different enterprises on the farms. But as the matter has been handled there have been gaps in the reports or a lack of clearness at critical points.

The labor records serve several useful purposes and I believe that the daily reports would be fully justified if they were not posted at all. For instance, we find in making up our reports of experiments that these daily reports often clear up important points which in the weekly letters or other more formal reports have been overlooked.

I believe that with a little further effort on the part of farm superintendents to make these daily reports more definite, we can post the items in such a way as to give results of real value in connection with our experimental work.

The attention of farm superintendents is called to the following points, which are suggested as a means of bettering the labor record work:

1. As early as possible in the spring each superintendent should send to the Washington office a plat map of his farm, showing the crop planted on each plat during the current year. The use of this map will greatly reduce the possibility of errors in posting.

2. In connection with the work done on fields used by cooperators, labor should be reported by fields, series and crops, as heretofore. The reports should be more specific than they have been. In all cases they should include field, series and crop, in addition to the field operation. For example, "Harrowing alfalfa in Field A-II". Heretofore reports have frequently read, "Harrowing in Field A". Such reports are of little value, because the crop and the series are not named.

22 February, 1913.

Labor Reports (continued)

3. In the case of all rotation fields, labor reports should hereafter be made by plats, instead of by fields. This is the only way in which an accurate estimate can be obtained as to the relative cost of different field treatments and different cropping systems. For purposes of comparison it is desired that reports be made by plats on the dry-land rotations as well as on the irrigated rotations. In connection with the dry-land rotations which are conducted by the office of Dry Land Agriculture, this suggestion is an exception to that contained in the first sentence of 2.

In reporting by plats it is necessary to enumerate the plats treated, as "Harrowing K-II, all plats", "Harrowing K-II, plats 1 to 10, inclusive", "Harrowing K-II, plats 1, 3, 4, 5, 12", etc. If the treatment is applied to a growing crop, the report should name the crop in each case, as "Cultivating potatoes, K-II, plats 1, 4, 5, and 12". If the reports are made out thus clearly, there will be less difficulty in keeping the permanent records properly.

4. More care should be taken to see that the man-hours and horse-hours are correctly reported. In 1912 there were frequent cases in which the omission of either the man-hours or the horse-hours was obviously incorrect. Operations like "Hauling alfalfa hay" were reported without showing horse labor or without showing the number of horse-hours.

5. In general, the labor reports should be made more specific and more clear and a little more care should be exercised in their preparation.

A few labor report summaries are given herewith in order to illustrate some of the imperfections which the above suggestions are intended to correct.

C. S. SCOFIELD.

Labor Reports (continued)

A.— Labor Cost of Producing 15 quarter-acre plats of Oats on Field K, at Huntley, in 1912.

Operation.	No.	Man Hours.	Horse Hours.
Harrowing.....	5	25	75
Plowing.....	6	36	108
Disking.....	7	48	146
Leveling.....	7	48	180
Seeding.....	1	16	16
Irrigating.....	4	39.5	0
Harvesting.....	1	14	12
Threshing.....	2	54	0
Hauling.....	2	24	48
Total		302.5	585
Per plat		20.2-	39

The labor reports on this field (K) were made up "by fields and crops"— that is, all the labor expended on one crop in Field K was reported together. This is the method which is to be used in reporting labor on fields used by cooperators. Where two or more co-operators use different parts of the same field, the series must also be considered and reported, so that the reports will show the amount of labor expended for each cooperator.

The above report is faulty in a number of respects, among which are the following:

When the irrigation was reported the report read, "Irrigating grains". This made it impossible for the person doing the posting to determine how much of the labor was expended in irrigating oats. For this reason the item of irrigating in the above table is only approximately correct.

Hereafter, Field K, at Huntley, as well as all other fields in which rotation experiments are conducted should be reported by plats, as suggested in paragraph 5 above.

Labor Reports (continued)

B.— Labor Expended in Producing Three Plats of Flax at Belle Fourche in 1912, not including plowing.

Operation.	Plat A-II-26			Plat A-III-14			Plat H-I-16		
	No.	Man Hours	Horse Hours	No.	Man Hours	Horse Hours	No.	Man Hours	Horse Hours
Disking	2	0.83	3.33	0	0.00	0.00	0	0.00	0.00
Harrowing	5	1.03	3.41	2	0.37	1.00	2	0.37	1.00
Seeding	1	1.66	1.66	1	1.66	1.66	1	1.66	1.66
Irrigation	1	4.66	0.00	1	4.00	0.00	1	3.75	0.00
Weeding	0	0.00	0.00	1	1.50	0.00	0	0.00	0.00
Harvesting	1	1.66	3.33	1	1.66	3.33	1	1.66	3.33
Hauling	0	Not reported		1	1.25	2.50	1	1.25	2.50
Threshing	1	8.00	0.00	1	9.00	0.00	3	18.50	0.00
Totals		17.84	11.73		19.44	8.44		27.19	8.49

This summary shows some of the results obtained from reports where the plat has been the unit of reporting. In the main, this summary is correct, but it has some imperfections. Hauling was not reported at all on Plat A-II-26. Since harvesting and threshing were both reported, it is reasonably safe to assume that hauling was actually done. In the threshing of all three plats, horse-hours of labor have been omitted. Unless this threshing was done without a machine, the labor has not been correctly reported.

22 February, 1913.

Labor Reports (continued)

C.— Labor Expended on the Rotation Fields at San Antonio, in 1912.

Operation.	No.	Man Hours.	Horse Hours.
Plowing.....	11	55.50	153.00
Harrowing.....	10	37.25	67.50
Disking.....	6	13.75	25.50
Subsoiling.....	3	9.00	18.00
Weeding.....	23	151.75	12.75
Marking rows...	1	8.00	
Cultivating....	12	50.25	57.00
Leveling.....	1	8.00	
Hauling manure.	2	28.50	29.50
Planting.....	4	13.50	19.00
Harvesting.....	12	147.00	47.00
Threshing.....	1	2.75	
Totals.....		525.25	429.25

This is a summary of all the labor expended on Fields A-4, A-5, A-6, B-5, and B-6 at San Antonio. In the main, the labor on these fields was reported according to the original plan. When the summary is made it is found, however, that the plan must be modified if we are to obtain specific information. The rotation field includes a number of crops, so that the above summary gives us no idea whatever as to the cost of producing any particular crop. Furthermore, each of the crops is produced in the rotation experiments by several different methods. The summary gives us no information as to the relative cost of the methods.

The summary is faulty in connection with the horse-hours of labor expended in threshing. This item has been entirely omitted in the labor reports. The same is true in connection with leveling, in which 8 man-hours have been reported and no horse-hours have been mentioned. If the leveling was done without horse machinery the item may still be correct.

Hereafter, these fields should be reported by plats, according to the suggestion in paragraph 3.

Labor Reports (continued)

D.— Labor Expended in Producing Alfalfa on Two Plats in the Rotation Experiments at Belle Fourche in 1912 (plowing no included).

Operation.	A-II-21			A-II-22		
	No.	Man Hours	Horse Hours	No.	Man Hours	Horse Hours
Leveling.....	1	.50	2.00	1	.50	2.00
Harrowing.....	2	.37	1.50	3	.62	2.50
Disking.....	1	.50	2.00	1	.50	2.00
Hoeing weeds..	2	.75		2	.75	
Planting.....	1	.75	.75	1	.75	.75
Harvesting....	1	.50	1.00	1	.50	1.00
Hauling.....	1	.25	.50	1	.25	.50
Totals		3.62	7.75		3.87	8.75

The above summary shows the results obtained from labor reports which have been clear, concise and specific throughout the season. This is the kind of results we hope to get by having all the labor expended in rotation fields reported by plats.

In all the above tables it will be noticed that the second column contains the number of time each operation was reported. This item will be of value in future summaries of labor reports by showing the number of times it has been necessary to perform a given operation on a given plat. Except where labor is reported by plats, however, these items are of little value.

1 March, 1913.

JURAT FEES.

General Order No. 174, dated February 20, 1913, reads as follows:

"Attention is invited to a decision of the Comptroller of the Treasury, dated October 29, 1912, in which he holds:

'That provision of the act authorizing such oaths to be administered by 'chief clerks of the various executive departments and bureaus, or clerks designated by them for the purpose' is understood to have reference to the executive departments at Washington and bureaus thereof. Had Congress intended to give an unlimited power to these chief clerks to designate other clerks to administer such oaths, regardless of the latter's service or location, it would appear to have been unnecessary to further enumerate, as the act does, the following clerks, viz: 'Principal clerks of the various national parks and other Government reservations* * * and principal clerks of the different Indian superintendencies or Indian agencies.'

In future, jurats to accounts for travel or other expenses against the Department of Agriculture will not be accepted, if made before clerks not in the Department at Washington, or other persons not designated by Section 8 of the Act approved August 24, 1912, unless such other persons are otherwise empowered to administer oaths, for which no reimbursement will be allowed.

General Order No. 160 is hereby amended accordingly.

(Signed) JAMES WILSON,
Secretary."

1 March, 1913.

TIME.

Attention is called to Memorandum for Heads of Offices No. 29, Dated February 25, and the accompanying form for use in making applications for leave while traveling, copies of which are given herewith.

It is thought that the memorandum and the form are nearly self-explanatory. This form is to accompany the application for leave on the regular leave blank, being used instead of the letter which has heretofore been written. It is still necessary to have permission to take leave included in the letter of authorization or letter of instructions. The only material change effected by this memorandum is that the form must be used in lieu of the ordinary letter which has heretofore been written to accompany such applications:

MEMORANDUM FOR HEADS OF OFFICES NO. 29.

We have had considerable trouble in the matter of granting leaves of absence while traveling on official business. To avoid such difficulties in future, applications for leave while traveling will be granted only when the leave is applied for in advance on blanks provided for that purpose. A copy of such blank is enclosed herewith.

Applications for leave of absence while traveling will not be granted unless it appears from the statement submitted in advance that the business to be transacted requires that the travel shall be performed at the time proposed, and if, after leave has been taken, the itinerary report submitted at the conclusion of the trip does not corroborate the preliminary statement on which the leave was granted, payment of the expense account will be suspended and the case will be submitted to the Chief of Bureau for such action as he may deem proper.

Very truly yours,
(Signed) B. T. GALLOWAY,
Chief of Bureau.

1 March, 1913.

Time (continued).

UNITED STATES DEPARTMENT OF AGRICULTURE.
Bureau of Plant Industry.Application for Leave While Traveling on
Official Business.Dr. B. T. Galloway,
Chief, Bureau of Plant Industry.
Dear Sir:

I respectfully request leave of absence for
..... days at while traveling on of-
ficial business from to
I certify that the answers given by me to the follow-
ing questions are correct:

- (1) Is the travel solely on account of official
business?
- (2) Is the official business, on account of which
the trip is made, of such a nature that it can-
not be satisfactorily transacted by correspond-
ence?
- (3) Will the taking of leave interfere in any way
with the official business for which the trip
is made?
- (4) Will any extra expense to the Government be in-
volved on account of the leave of absence re-
quested?
- (5) Please state specifically and in detail the na-
ture of the official business to be transacted
at the point or points where it is desired to
take leave of absence.
- (6) If the official trip is broken at a point en
route where no official business is to be trans-
acted the statement must show the character of
the official work at other points in sufficient
detail to enable the administrative office to
determine whether the expense of the trip, or
any portion of it, is necessary.
- (7) If the leave of absence requested is granted,
the itinerary report signed by me will show
fully and explicitly the nature of the official
work transacted on the trip before and after
taking the leave of absence.

Recommended:

Head of office:

Approved:

Applicant:

Chief of Bureau.

1 March, 1913.

FIELD NOTES.

San Antonio.

The maximum temperature during the week of February 15 was 68, minimum 28.

The grubbing of stumps along the north side of A-B-8 was completed. This grubbing was made necessary by the fact that the sprouts had the effect of sapping the edge of the field of its moisture and seriously affecting the growth of the plants adjacent.

The plowing of the fields has been completed, with the exception of a few of the rotation plats which are spring plowed, and the farm in general is in excellent condition, there being sufficient moisture in the ground to make the planting of corn possible at an early date.

Scottsbluff.

The maximum temperature during the week of February 8th was 26, minimum 17; during the week of February the maximum temperature was 45, minimum 14.

Considerable damage was done by blowing during the winter. In the orchard the strawberries were covered with straw and then fodder on top of that to keep the straw from blowing away. On some portions of the rows all of this material has been swept away. On most of the plants the fodder held, but the soil has drifted in to such an extent that the rows have the appearance of ridges across the orchard.

The raspberries and grapes that were covered with soil have in many places been bared and the plants exposed. On many of the plats the soil has been swept away as deeply as it was cultivated last year.

MAILING LISTS.

Hereafter, when mailing lists, or corrections in or revisions of mailing lists, are sent in, they should be in duplicate. One copy is needed for our office files and it is necessary to send one to the Government Printing Office.

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FIELD NOTES.

Scottsbluff.

The maximum temperature during the week of February 22 was 61, minimum 17. Thursday night and Friday a snowfall of about 4 inches occurred.

Thursday the strawberries were uncovered. These were covered with six inches of soil in some places, and after being uncovered the plants were again covered with mulching.

In order to prevent blowing among the small fruit next year it is thought that it may be a good plan to plant two or three rows of corn between the rows of fruit, the corn rows to be not more than one foot apart and very thick in the row. The object would be to let the corn get up about 18 inches and prevent all blowing.

Truckee-Carson.

The maximum temperature during the week of February 15 was 60, minimum 12; greatest daily range 42.

The laying of the redwood drain tile for the drainage system was completed during the week.

A number of fruit trees and ornamentals were set out.

Delta.

The maximum temperature for the week of February 15 was 72, minimum 28.

No field work was done during the week; the office work consisted in compiling figures from yield tests and final digging.

Umatilla.

The maximum temperature during the week of February 15 was 44, minimum -4.

A Farmers' Institute was held on Monday afternoon and evening by four professors from the Oregon Agricultural College. The subjects discussed were Poultry, Dairying, Hogs, and Vegetables. The meetings were well attended, showing the progressive spirit of the farms of the project.

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Vol. II.

8 March, 1913.

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FISCAL REGULATIONS.

Copies of the revised Fiscal Regulations effective March 1, 1913, have been sent to all the farms.

PARCELS POST.

The regulations governing the use of the parcels post system do not affect official matter, and no packages exceeding 4 pounds 6 ounces in weight may be mailed under frank.

LABOR RECORDS.

Class III Labor at San Antonio, Yuma, Belle Fourche, and Huntley in 1912.

There is given on the following page a summary of the labor reported in 1912 from San Antonio, Yuma, Belle Fourche, and Huntley in connection with "Equipment, Operation, and Maintenance" (Class III).

Labor Records (continued)

Work applied to	San Antonio		Yuma.		Belle Fourche		Huntley	
	Man hours	Horse hours	Man hours	Horse hours	Man hours	Horse hours	Man hours	Horse hours
Buildings....	619.5	8.0	248.0	90.0	577.5	21.5	1145.0	772.0
Fences.....	215.5	15.0	706.0	94.0	317.5		214.0	50.0
Irrigation system.....	43.0		1460.0	783.0	2133.5	1397.0	398.0	38.0
Grounds.....	1516.0	71.5	421.0	239.0	262.5	357.0	301.0	130.0
Roads and alleys.....	127.5	153.0	664.0	1792.0	162.5	334.0	81.0	104.0
Clearing....	2.0		466.0	20.0				
Water system	42.0	5.0	17.0		479.5	609.0	112.0	
Field stakes	90.0	0.5	104.0	12.0	188.5		20.0	
Sewers.....	41.0							
Leveling....			8.0	32.0	57.5	230.0	4.0	16.0
Surveying...			34.0	32.0	91.0		152.0	
Totals.....	2696.5	253.0	4128.0	3094.0	4270.0	2948.5	2427.0	1110.0

It will be noticed that the total quantity of labor in this class at Yuma is strikingly similar to that at Belle Fourche. The number of man hours at San Antonio is very nearly the same as at Huntley. It is seen also that the cost of labor on equipment, operation and maintenance was more than twice as high at Yuma and Belle Fourche as it was at San Antonio and Huntley. The items show that this difference was due to operations necessary in initial preparation of land, constructing irrigation systems, etc.

8 March, 1915.

Labor Records (continued)

There are difficulties in posting the reports of labor in this class as well as in Class V, Field Operations, which were discussed in the Bulletin of February 22. The main difficulty is lack of clearness in the daily reports. Such items as "Greenhouse, 1 man, 4 hours" have been reported. From such an item it is not clear whether the labor was "Greenhouse work" or work on the greenhouse, such as painting. It is suggested that the schedule of labor classification published in the Bulletin of January 27, 1912, be a little more carefully followed, in order that the summaries made up in the Washington office may be accurate.

It would add to the clearness of the labor reports if they contained either the class name or the class numeral as well as the subhead. For example, the reports from Huntley give the numeral and then the subhead, as "II, Hauling hay", "III, Fences", "IV, Visitors", etc. This method is entirely clear. The heading "II, Hauling hay" makes it clear that the labor is to be charged to Horses (Class II) rather than to Field Operations (Class V). If the farm clerks will use some such method as this in order to make their reports clear, the value of the labor record work will be greatly increased.

FIELD NOTES.

Delta.

The maximum temperature during the week of February 22 was 71, minimum 25.

The work of the week consisted in plowing and harrowing, and the compilation of figures from yield tests.

8 March, 1913.

FIELD NOTES.

Scottsbluff.

The cold weather continued throughout the week of March 1. February 23 the thermometer registered 18° below zero. This temperature with a high wind made very severe weather. Considerable damage was done to the water system by the freezing of pipes. It was found necessary to keep a fire in the potato cellar in order to save the potatoes.

Farmers Institute was held at Mitchell and Scottsbluff during the week. It was a two-day session at each place, and potatoes was the only topic taken up.

San Antonio.

During the week of February 23 the maximum temperature was 75, minimum 34.5.

Plat B6-13 was plowed and plat B6-15 was plowed and subsoiled. The corn on the rotation plats was planted on the 21st. Texas Red Rustproof oats were seeded on three oat plats in the new rotations. The roads on the farm were disked on Friday preparatory to grading.

The Mexican seedling orchard was thinned, 73 three being taken out. This was made necessary by the size of the trees, which were so closely planted that it was impossible to cultivate the orchard properly.

A 1/10 acre plat of Irish potatoes was planted in the garden on D3.

Belle Fourche.

The maximum temperature for the week ending March 1 was 26, minimum -11.

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8 March, 1913.

FIELD NOTES.

Truckee-Carson.

The maximum temperature during the week of February 22 was 61, minimum 5. On the 21st $2\frac{1}{2}$ inches of snow fell, and the total precipitation for the week was 0.18 inch.

Mr. Heisey made a trip through Mason Valley by auto, in company with Mr. Fred Hinze, Manager of the Sugar Beet Factory, and Mr. I. H. Kent. Mr. Heisey's report of this trip is as follows:

"The Walker River Valley at Mason, Nevada, is about 1500 feet higher than the Truckee-Carson Project, and as a result has a shorter growing season and is more liable to radical frosts. Often in June the temperature registers below the freezing point. The principal crops in value of production are alfalfa, potatoes, and small grains. It is an exceptional season that will grow three crops of hay. Bush fruits produce annual crops that are profitable, and profitable orchard crops are secured about one year in five.

"The furrow system is used in irrigating vegetables, and the care and cultivation of these crops is practically the same as that given by the farmers of the Truckee-Carson Project. In preparing land for field crops, the Walker Valley farmers prefer long lands with levees from 10 to 30 feet apart, having no cross levees. The country has a general fall of about 7 feet to the mile and the soil takes water readily. The soil is uniform in character. In the lower part of the valley it is a heavy, black loam, which grows lighter in color and more sandy as the elevation increases. It is not in any way a spotted soil. The methods of handling water cannot be considered economical. The ditches are small and will not carry more than three second-feet of water. The supply is continuous, but this is spoiling some of the best lands, since they are becoming swampy. Drainage work has been entirely neglected and as a result foxtail, salt grass, and marsh grasses are replacing the alfalfa."

Mr. M. L. Thomas, Farm Clerk, was transferred February 20 to the local office of the Reclamation Service.

8 March, 1913.

FIELD NOTES.

Yuma.

The maximum temperature during the week of February 15 was 77, minimum 36.

The first spring irrigation was applied to all alfalfa plantings and to nursery plats A13-1 and 2. D17 and 21 were plowed. A small amount of early garden and potatoes have been planted.

It has been necessary to take up the rows of eucalyptus and date trees planted along the south line of the farm to allow the construction of an open drainage ditch which is being made by the Reclamation Service. The Reclamation Service have also taken out and will reconstruct the south line of fence. It is intended that this ditch shall be sufficiently completed to control the drainage situation by the time the spring floods of the Colorado River occur.

The maximum temperature during the week of February 23 was 81, minimum 27; greatest daily range 43.

Men and teams were engaged during the greater part of the week in repairing irrigation system and leveling field series B18 to 24, throwing up borders and retouching new fields E1 to 9. Plats C19 and D21 were plowed. Cantaloupes, melons, and sweet corn were planted on fields C21 and A13-3.

Mr. Blair was in Los Angeles during the early part of the week purchasing supplies.

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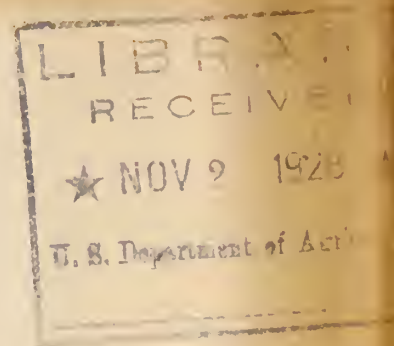
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OF THE OFFICE OF

WESTERN IRRIGATION AGRICULTURE

BUREAU OF PLANT INDUSTRY

U. S. DEPARTMENT OF AGRICULTURE



W E E K L Y R E P O R T S
Of The Office Of
WESTERN IRRIGATION AGRICULTURE

Vol. XXX

October 13-20, 1928

No. 11

Huntley

For the week ending October 13 the maximum temperature was 80, the minimum 23, and the precipitation 1.03 inches.

A rainfall of 1.03 inches on October 10 and 11 was the largest amount to occur at one time since early summer and will be of much benefit to winter grains and in making it possible to do fall plowing. The harvest of sugar beets on the project, which was about one-fourth completed, was delayed several days by this rainfall. Bean threshing on the project was not entirely finished, although in most cases beans not threshed have been stacked. The price of beans continues at 5½¢ to 6¢ per pound.

At the station the harvest of sugar beets and potatoes was completed during the week. Yields of these crops are given in the accompanying tables.

Yield of sugar beets in 1923, irrigated rotation experiments

Rotation No.	Plot No.	Stand, plants per acre	Pounds per plot	Tons per Acre	Sugar content, per cent
2-A	K- V- 22	21,056	3,861	7.72	19.0
10	II- 7	21,380	8,303	16.61	13.4
18	V- 4	13,560	663	1.53	16.8
20	- 6	21,728	5,520	11.04	20.0
21	- 14	23,520	8,370	16.74	17.0
22	- 8	23,744	2,411	4.82	17.9
23	- 16	21,504	7,116	14.23	18.7
30	IV- 16	22,848	3,020	6.04	16.5
31	III- 14	23,520	8,575	17.15	16.4
32	IV- 19	24,640	3,910	7.82	17.5
40	- 4	22,400	6,897	13.79	18.0
42	- 10	19,712	5,277	10.55	15.7
60	III- 8	20,608	5,753	11.51	17.0
61	- 2	21,728	9,706	19.40	16.1
67	II- 2	22,176	8,918	17.84	17.7
2-AA	L- IV- 5	21,504	3,434	6.87	18.3
34	- 3	21,120	2,176	4.35	16.7
35	- 7	23,808	6,449	12.90	17.7
46	- 11	19,264	1,574	3.15	15.5
64	- 16	20,736	5,597	11.19	17.6
37	L- I- 2	23,520	7,075	14.15	18.7
47	- 10	19,968	6,165	12.33	17.4
49	- 6	23,040	7,719	15.44	18.7
49	- 7	16,512	6,890	13.78	18.0

Huntley (cont'd)Yields of potatoes in 1928

Rotation No.	Plot No.	Stand, plants per acre	Pounds per plot	Bushels per acre	Per cent marketable
4-a	K- IV- 21	17,552	1,680	112.0	82
20	- V- 5	18,176	1,130	75.3	81
21	- - 13	20,736	3,540	236.0	86
24	- - 9	20,224	1,600	106.6	84
25	- IV- 6	20,480	3,500	233.3	86
26	- V- 11	19,712	1,930	128.6	80
27	- - 20	12,032	1,810	120.6	77
30	- IV- 17	18,944	1,840	122.6	79
31	- III- 15	20,736	2,800	186.6	83
40	- IV- 3	20,224	2,940	196.0	92
44	- - 13	19,456	2,880	192.0	90
60	- III- 12	22,016	3,820	254.6	88
61	- - 6	20,480	4,090	272.6	89
4-aa	L- IV- 9	17,056	2,330	155.3	78
34	- - 4	16,432	2,000	133.3	77
35	- - 8	16,016	4,240	282.6	84
64	- - 17	14,144	4,020	268.0	91
	O- I- 7	20,384	7,390	492.6	92
	- II- 11a	21,216	2,900	386.6	85
	- - b		3,550	473.3	89
	- IV- 1a	17,056	2,130	284.0	90
	- - b		1,610	214.6	73

Plot O-I-7 maximum production series.

Plot O-II-11b treated with ammonium sulphate at rate of 400 pounds per acre, while plot O-II-11a, as check, was not treated.

Yields of sugar beets, Field O, 1928.

Plot No.	Stand, plants per acre	Pounds per plot	Tons per acre	Sugar content, per cent
O- I- 8	23,040	10,998	22.00	19.4
- II-10-a	21,504	3,395	13.58	18.0
- -b		4,199	16.80	18.5
- IV- 2-a	23,232	4,090	16.36	18.3
- -b		4,493	17.97	19.0

Plot O-I-8 in maximum crop series.

Plot O-II-10-b treated with ammonium sulphate at 400 pounds per acre. Plot O-II-10-a, as check, not treated.

Plot O-IV-2-b treated in 1927 with ammonium sulphate at 400 pounds per acre and cropped that year to potatoes. Plot O-IV-2-a, as check, not treated. Neither plot treated for 1928 beet crop.

Dan Hansen.

Prosser

Some trouble was experienced during the week ending October 13 in feeding last year's potatoes to the dairy cows. Several cases of severe indigestion and bloat occurred. It is thought that overfeeding and sprouts on the tubers are the cause of the trouble. More will be reported of this disturbance later.

The first killing frost of the season occurred on October 10 when the temperature was 31 degrees. There has been a frost-free period this season of 160 days.

The delivery of irrigation water to the Prosser Irrigation District has almost ceased for this year. A few farmers are still receiving enough for stock and here and there a little is being used for fall irrigation. The Experiment Farm has received so far this year 760 acre-feet, amounting to 3.33 acre-feet per acre. This is the largest delivery that has ever been made to the Station, and the irrigation season of 180 days has been one of the shortest. This is chiefly due to modifications and repairs made to the district pump, which have resulted in its increased efficiency.

Harvesting of the third cutting of alfalfa is now in progress on the station. About half of the crop was put in the stack during the latter part of the week. This is somewhat late for the third cutting, but as yet no difficulty has been experienced in curing the hay.

Several local fairs were held on the project and in the vicinity during the week. The grain, vegetable, and livestock judging were done by the specialists of this station. The quality and number of exhibits shown at these fairs each year seem to be increasing.

Farm work during the week ending October 20 consisted of harvesting the third cutting of alfalfa and husking corn from the fields.

A dairy show was held at Sunnyside during the week. It was fostered by the Sunnyside Commercial Club for the purpose of creating and stimulating an interest in dairying in the Lower Valley. Mr. M. D. Scroggs, Superintendent of the Sunnyside Division of the Yakima Project, is president of the Association formed to promote the enterprise. He said, "It is primarily a farmers', not a breeders', show."

Various exhibits of purebred and grade cattle were shown. Lectures and informal talks were given by college representatives and leading dairymen of the valley.

Alfalfa was harvested during the week on the plots in the "Frequency of Irrigation" experiment. This experiment has been running four years, and the yields for each year are given in the accompanying table. The results indicate that alfalfa should receive ordinarily more than four irrigations during the season.

Prosser (cont'd)Yields of field-dry alfalfa hay in irrigation experiment,
1925-1928, inclusive.

Year	Yields in tons per acre							
	Plots							
	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8
1925	6.00	5.52	5.40	6.00	4.72	5.32	4.43	5.13
1926	7.02	6.40	6.20	6.53	6.54	6.20	5.02	4.40
1927	4.95	4.36	5.23	6.00	5.57	4.49	4.51	4.34
1928	3.92	4.29	4.80	4.78	5.20	4.43	4.14	4.02
Total	21.89	21.07	21.63	23.31	22.03	20.44	18.15	17.89
Yearly average	5.47	5.27	5.40	5.82	5.50	5.11	4.54	4.47

Note: Each plot received a net application of 3 acre-feet of water per acre during the season. The interval between irrigations was as follows:

Plots 1 and 2 were irrigated every 14 days, total 10 irrigations
 Plots 3 and 4 were irrigated every 21 days, total 7 irrigations
 Plots 5 and 6 were irrigated every 30 days, total 5 irrigations
 Plots 7 and 8 were irrigated every 42 days, total 4 irrigations.

C. C. Wright.

San Antonio

The maximum temperature for the week ending October 13 was 92, minimum 62, greatest daily range 27, and mean temperature for the period 79.8°. Three days were clear and four were partly cloudy. There was no precipitation.

Station activities included plowing and disking on Field D-3; mowing Johnson grass and weeds on the waste areas of Fields A-3, B-3, E-3, and miscellaneous rotation plots, planting field peas for green manure on rotation plots; removing dead trees from orchards; and care of grounds and garden.

An unusually large flight of Southern Snout-butterflies (Libythea carinenta, Cramer), which started about the first of October, continued to pass this section until the latter part of the week. They were traveling in an east-north-east direction. So far as is known to the writer, this insect is of no economic importance. A similar migration of this same species occurred in this region in 1925.

Cotton leaf worms (Alabama argillacea, Hubner) appeared in a rather general infestation throughout this section during the week. Because of the lateness of the season, however, no attempt will be made to control them.

The week ending October 20 was slightly cooler than normal for the season. The maximum temperature was 83, minimum 47, greatest daily range 30, and mean for the week 69.3°. A penetrating rain of 1.42 inches

San Antonio (cont'd)

occurred on the 16th. Five days were clear and two were partly cloudy.

Rain on Tuesday followed by cool, non-drying days and exceptionally heavy dews every night made field work impracticable during the greater part of the week. Johnson grass has thrived under the conditions pertaining since the last of August and has gained a discouraging advantage on the station.

Reglazing the greenhouse roof, in anticipation of the inauguration of some very interesting experiments with the causal organism of cotton rootrot in cooperation with Dr. D. C. Neal of the Office of Vegetable and Forage Diseases, was started during the week.

The cotton produced by Kekchi selections was picked. Only a few of the strains recovered sufficiently from the hail damage of June 10 to produce a small number of bolls. No cotton will be picked from other station plantings. Owing to damage from boll weevils and drought, this year's crop in this county (Bexar) is only about three-fifths of normal. Last year the cotton crop was only about one-third of normal.

Geo. T. Ratliffe.

Umatilla

During the week ending September 29 the maximum temperature was 86 and the minimum 36. There was no precipitation.

The curly-top investigation, conducted in cooperation with the Office of Truck Crop Diseases and the Oregon Station, was completed for the season. One hundred per cent resistance was found in a variety of squash and of beans. A number of other varieties of the 200 crops tested were found resistant enough to produce fairly satisfactory crops. This work was in direct charge of R. F. Wilber, an agent of the Truck Crop Disease Office.

A carload of crossbred and black face lambs has been secured for the winter feeding work. The feed lots were fenced during the week. The lots this winter will be located on Field A-4, which has been in alfalfa for ten years. It has been the practice to feed each year on pieces of land ready to work out of alfalfa. This method completely eradicates the alfalfa and puts the land in splendid condition for subsequent cropping.

The men were laid off until winter feeding starts.

The maximum temperature was 77 and the minimum 33 during the week ending October 6. There was a rain of .06 inch.

The Umatilla Project Fair was held during the week. There were more exhibits and a larger attendance than ever before. Considerable time was taken in preparing and attending a booth in the Agricultural Building devoted to the work of the Station.

During the week ending October 13 the maximum temperature reached 86 and the minimum was 18. There was no precipitation.

The first frost this fall occurred during the week. The minimum temperature of 18 on the 12th did comparatively little damage except to apples still on the trees as the growing season was practically over.

The writer assisted in a farm management tour of the project staged by the Assistant County Agent. On the six farms visited special attention was given to pastures, silage crops, and farm flocks of sheep.

